



FOOD QUALITY AND SAFETY

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Analysis of traceability in the chicken processor Beijing Dafa Chia Tai Co

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Report

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Summary:

In recent years there has been an increased focus on traceability in food supply chains. The European Union project Trace the origin of food (TRACE) is a joint effort between the food industry and solution providers and aided by research institutions.

The objective of this report was to analyse the specific technical and organisational changes which it would be necessary to implement at a chicken processor in order to significantly reduce the existing information loss within the chicken supply chain.

The current material and information flow of chicken processing was analyzed and recommendations of changes are made (both technical and organizational).

Table of contents

1	Objective	1
2	Introduction	3
2.1	Background	3
2.2	Scope of study	4
3	Method	5
3.1	Application of the process mapping method at Dafa.....	6
4	Results	7
4.1	Material flow	7
4.1.1	Step I – Reception and slaughter	7
4.1.2	Step II – Cutting down	8
4.1.3	Step III – Processing, frying.....	9
4.1.4	Step IV – Insert sticks, freezing.....	10
4.1.5	Step V – Packaging, shipment	10
4.1.6	Other ingredients – Oil, batter, spices, sticks, plastic	11
4.2	Information flow.....	13
5	Discussion and Conclusion	15

1 Objective

The objective of this report was to analyse the specific technical and organisational changes which it would be necessary to implement at a chicken processor in order to significantly reduce the existing information loss within the chicken supply chain.

The current material and information flow of chicken processing was analyzed and recommendations of changes are made (both technical and organizational).

2 Introduction

2.1 Background

This study was conducted as part of the TRACE project effort to analyze material flow, information flow and information loss in chosen chains. This study was conducted as part of Work Package 5 “Sector Specific Traceability” where “Task T5C.2 is described as “Analysis of current material flow& information flow in the chicken production”.

This study establishes the basis for later specification and implementation of changes in the chain, as described in T5C.3-5.

The company chosen for this study was the Beijing Dafa Chia Tai Co. (Dafa), a large chicken processing plant located in Yangzhen, Shunyi district, in Beijing, China. Dafa employs close to 10.000 people, of which between 5.000 and 6.000 work at the headquarters where this study took place.

The product chosen for this study was ready made Yakitori chicken sticks, currently mainly exported to Japan, but previously (before the EU ban on poultry product imports from China) also exported to Europe.



The product was chosen because it is a high volume product, it is mainly exported, and Dafa already has special traceability/documentation measures in place for that product; see below. In August 2007, the Chinese State Council published the “White Book on China’s Food Quality and Safety Situation” claiming the EU will lift its ban on China’s cooked poultry before the end of 2007, and for this reason is was deemed particularly relevant to study a cooked product; one which might be exported to Europe soon.

Beijing Dafa Chia Tai Co. (Dafa) is an integrated plant which, for the Yakitori stick chain:

1. receives live chicken and slaughters it, producing chicken carcasses
2. cuts the chicken into parts, producing 5kg bags of chicken meat from legs
3. cooks/fries the product, producing Yakitori nuggets
4. puts the nuggets on sticks, freezes, packages and exports them

The processes are physically separate and are in separate clean areas with strict access and hygiene control. This report describes all these four processes, and makes recommendations

with respect to how traceability, transparency and information logistics can be improved at Dafa related to Yakitori sticks.

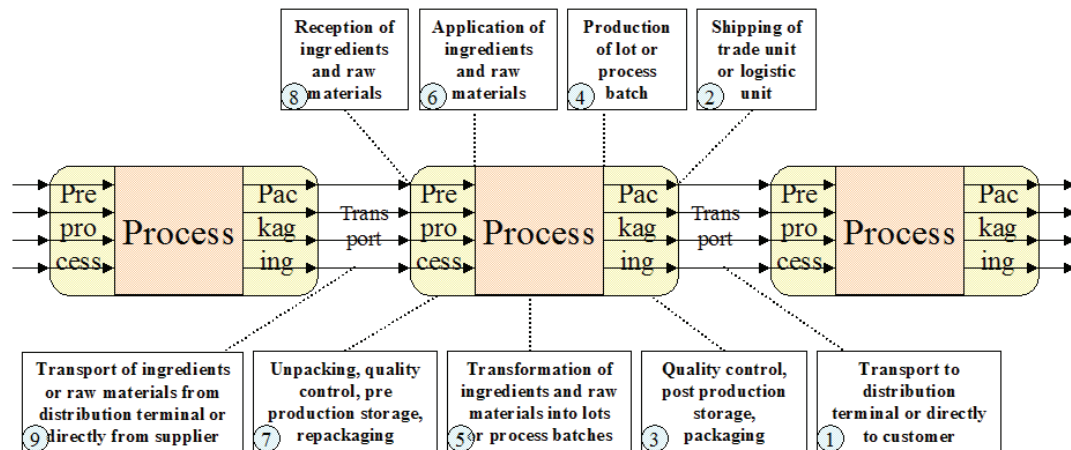
2.2 Scope of study

The scope of this study, as it stands, is to document the current state of information flow and loss in the Chinese chicken producer Beijing Dafa Chia Tai Co related to the production of Yakitori sticks.

Most of the material documented below came from a visit to the facility on 19th, 20th and 21st of December 2007 and an in-depth interview with the appropriate employees at Beijing Dafa Chia Tai Co. The interview took place during the mentioned visit.

3 Method

Process analysis, sequence diagram



The method in each link. When performing process studies to document material and information flow of the food, each of the 9 steps above can be converted to a form to be used in the mapping or interview. The lists with questions are quite extensive, and not all questions will apply to all links. In addition, some products or links may have special attributes that it is relevant to record in addition. These may easily be appended to the respective forms.

Note that steps 2, 4, 6 and 8 deal with the transformation information; the documentation of what happens exactly at the point in time when the product moves from one context to the next. Steps 1, 3, 5, 7, and 9 deals with durations; what happens or what is the state during transportation, pre-processing, production and packaging of the product.

The diagram above and the lists with questions found in the appendix show how to map one product, starting with a form or table where the information about the transportation of it to the next link is recorded. As the process mapping moves against the material flow, it is likely that multiple tables or forms will be needed. In particular this is true when moving from mapping the process parameters (step 5) to the application of raw materials and ingredients (step 6). If only one product, process and transportation route is documented, there will be only one set of questions to ask (one form or table) in steps 1, 2, 3, 4, and 5. If multiple raw materials or ingredients are used then each of these will be documented on a separate form 6, and each of these form 6's will then have to be traced through steps 7, 8 and 9.

“Standard method for analysing material flow, information flow and information loss in food supply chains” - © Norwegain Institute of Fisheries and Aquaculture (Fiskeriforskning), 2007, Petter Olsen. The method has been submitted for scientific publication, so please refrain from extensive quoting or further distribution without checking with the author.

3.1 Application of the process mapping method at Dafa

For the Dafa chain the following forms have been filled in:

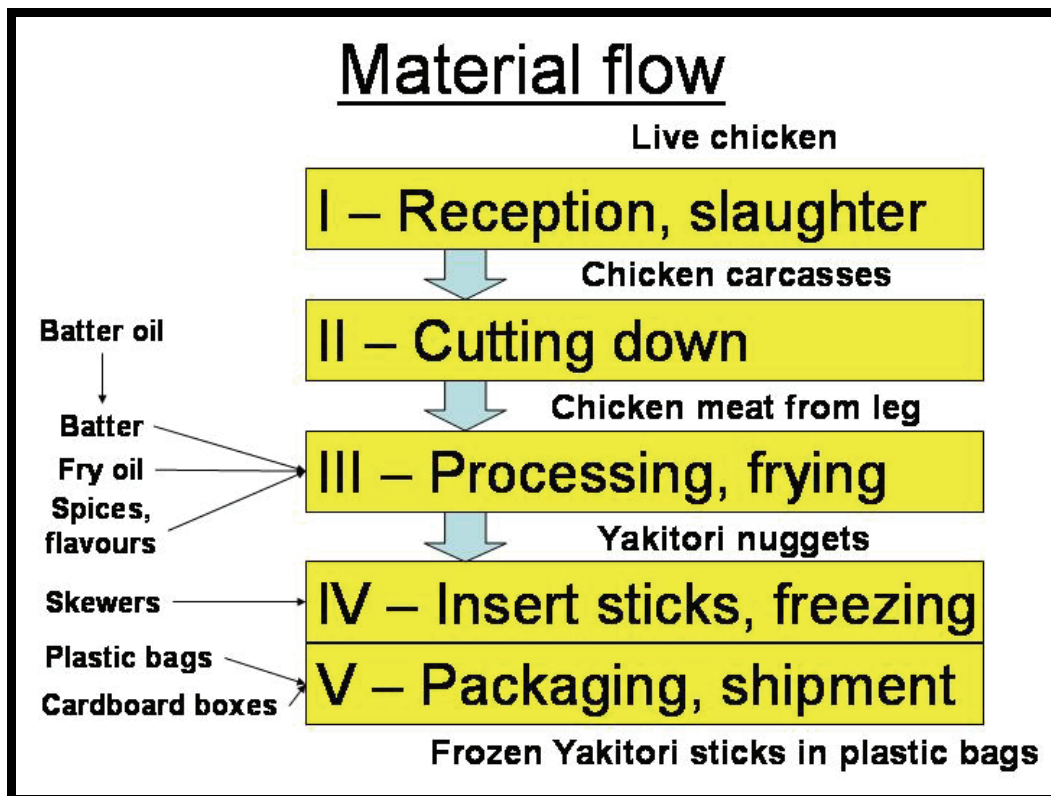
The following forms have not been filled in:

- Step 1, form 2 and 3 - Not relevant. Whole batch is sent to cutting if not quarantine actions is necessary
- Step 1, form 6 and 7 - The chicken is put on hooks on a conveyer and kept as one batch.
- Step 2, form 2 and 3 – Not relevant because of continuous production on conveyor belt
- Step 2, form 6 and 7 - Not relevant because of continuous production on conveyor belt
- Step 2, form 9 – Identical to step I, form 1
- Step 3, form 1, – Not relevant because of continuous production on conveyor belt
- Step 3, form 9 – Identical to step II, form 1
- Step 4, form 9 – Identical to step III, form 1

4 Results

4.1 Material flow

Dafa produces a wide range of finished products based on chicken. This process mapping focused on the 4 process steps relevant in the production of Yakitori sticks as indicated below:



Packaging and shipment took place in the same location and hygiene zone as the inserting of sticks and freezing, but due to the different nature of the processes it has been separately identified in the analysis and in the diagram above. The physical separation of the 4 processes is extremely strictly enforced, with clean zones, mandatory cleaning, washing, spraying and decontamination (chamber) on entry (also of visitors), use of dedicated and clean uniforms and boots, etc. With respect to hygiene and access control, it is probably fair to say that Dafa had the highest standards of any food production plant ever visited by the process mapping team.

Some details of the material flow through the plant follows; for more detailed information including the information flow, see the tables in the appendix.

4.1.1 Step I – Reception and slaughter

Trucks with 3000+ live chickens arrive at Dafa every half hour or so. Consecutive trucks are always from the same farmer, at least 10-12 trucks in a row, normally more. The farm number is noted down, and the truck is emptied; the chickens are hung upside down by their feet on a conveyor belt that goes into the abattoir where killing is performed as a manual task. When a truck is emptied, this is indicated by leaving (at least) 10 empty hooks on the

conveyor belt before taking chickens from the next truck. With continuous production, the plant can receive and process up to 140,000 live chickens per day. Note that the most important traceability code (described below) is the 6 hour shift on the finished product line, and for one such shift only one farm code is recorded. This means that the tail ends of deliveries will overlap each other, and that chicken from one farm might be present in the last shift recorded for the previous farm or in the first shift recorded for the next farm. With the continuous production process at Dafa, this seems like a sensible compromise, and although it is important to keep in mind in case of a farm-based recall, it will not significantly increase the recall size.



Step I - Trucks with 3000+ live chickens queuing to be unloaded



Step II - Chicken legs

Disease and medication records are received from the farmers, and various control checks are performed on the received chicken, recorded manually (in Chinese) on pre-printed paper forms.

The output from this process (and input to next process) are whole, gutted and plucked chicken carcasses, transported individually on a conveyor belt.

4.1.2 Step II – Cutting down

Cutting down is a 100% manual and continuous process with no possibility for intermediate storage which makes traceability through this step fairly simple. An enormous cutting room with more than 800 people is responsible for transforming whole chicken carcasses into a wide variety of cuts and pieces. For Yakitori sticks, only meat from the legs is used.



Step II - Meat from chicken legs



Step II - Yakitori size chicken meat

Various control checks are performed on the chicken and the cuts, recorded manually (in Chinese) on pre-printed paper forms.

The output from this process (and input to next process) are 5kg bags of chicken meat from legs, transported on a conveyor belt to the next step and used almost immediately there (at most 1-2 hour temporary storage)

4.1.3 Step III – Processing, frying

Dafa buys oil, spices and flavours to make batter for the Yakitori sticks. Quality control checks including sensory analysis are taken on the ingredients and written down for future reference. There is no batch identifier on the ingredients when they are received, but one is assigned internally by Dafa. The batter is produced manually, the chicken bits are mixed with the batter, and then goes to the frying process. Frying is again a manual process with many grills in parallel, and temperature recordings for each grill are taken every hour and noted down on pre-printed forms.



Step III - Frying the Yakitori nuggets



Step IV - Inserting sticks in the Yakitori nuggets

The output from this process (and input to next process) are 20kg plastic bins of fried nuggets, transported manually to the next step and used almost immediately there after cooling.

4.1.4 Step IV – Insert sticks, freezing

Step IV is a manual process of putting 5 fried chicken nuggets on a stick and feeding them onto the conveyor belt that goes into the freezer. Quality controls are performed and written down both on the sticks (size, shape, etc) and on the sticks.

The output from this process (and input to next process) are frozen Yakitori sticks with 5 nuggets on each stick, transported manually to the next step and used almost immediately there.

4.1.5 Step V – Packaging, shipment

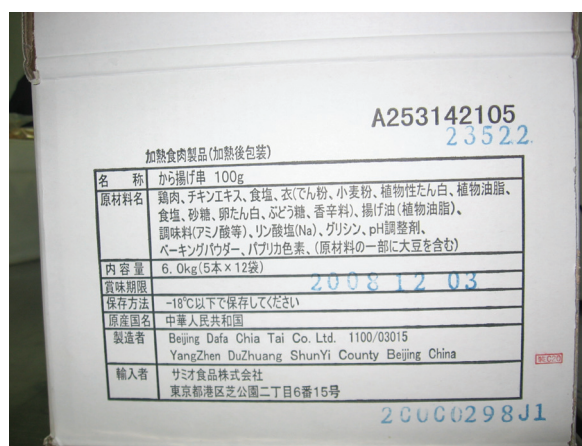
5 frozen Yakitori sticks are put and sealed in a plastic bag with a Japanese label. The label contains fixed information (product description, ingredient list, etc) as well as best before date and a 5 digit traceability number (see picture below, number 23522). This traceability number identifies the 6-hour shift in which the Yakitori sticks were packaged. Production is continuous, so there are (or can be) 4 shifts per day, numbered from 1 (the morning shift) to 4 (the late night/early morning shift). Lines and temporary storage are emptied between shift 2 and 3, as well as between 4 and 1, but separation between shift 1/2 and between 3/4 are approximate, with overlap.

12 sealed plastic bags are put together in a cardboard box which also has a Japanese label on it with some more information. Notable is the 10 digit alphanumeric code (see picture below, code 2C0C0298J1) which contains 3 parts. The first 3 digits describe the shift; 2 means shift 2, C0 describes who was working on that shift. The next digits represent the farm code. In case of overlap between deliveries, only the farm code of the farmer that supplied the majority of the chickens on that shift is noted down. The last digits indicate the production date and shift.

Importantly, there is a unique 1-to-1 relationship between the 5-digit code in the plastic bag and the 10-digit alphanumeric code on the carton; given one code Dafa can always find the other. When asked about the reason for this redundancy, the interviewees indicated that the 10-digit code was an internal code used for all (or most) Dafa products, where as the 5-digit code was a customer requirement and only used in Yakitori sticks exported to Japan.



Step V - Label for plastic bag with 5 sticks



Step V - Label for carton with 12 plastic bags

The boxes are then put on pallets, but the pallets are only temporary and not identified. The pallets are put in containers, and the containers are identified with unique numbers linked to the export permit they get from Chinese authorities. A whole container may contain several product types, and several different batches of the same product, but it always go to the one,

and only one Japanese importer. To the knowledge of the people at Dafa, the container is not split up further. To investigate what actually happens in Japan is beyond the scope of this study.



Step V - Plastic bag with Yakitori sticks



Step V - Plastic bag with Yakitori sticks and label

4.1.6 Other ingredients – Oil, batter, spices, sticks, plastic

As mentioned above, the other ingredients are bought by Dafa, an internal batch number for each ingredient batch is assigned upon reception and extensive quality control checks are performed on each batch before use. Dozens of forms are filled out in great detail; in many cases the same form is used for different ingredients, but with different content (different parameters measured) for each. The forms generally have pre-printed rows and columns in English, but are without exception filled out in Chinese.

Below are some of the quality control checks that Dafa perform on received ingredients. According to the Quality Control Department at Dafa, they are obliged to perform these checks and note down the results for all ingredients received with the exception of ice and water.

4.1.6.1 Quality control checks for batter

Flavouring Checkback record:	Flavouring name
Product name	Quantity
Date	Lot no
Craft	Shelf life
Code	Flavouring plant
Phase	Time
Group	

4.1.6.2 Quality control checks for spices and flavourings

Flavouring name	Shelf life
Quantity	Flavouring plant
Lot no	Time

4.1.6.3 Quality control checks for mixing of batter

Tumbled products inspection record:	Time
Product name	Vacuum pressure Mpa
Craft	Temp of solution
Date	Meat: solution
Measurement No	Temp of product - Before
Machine no	Temp of product - After
Method	Tumbled effect
Tumbled	Code (shift)

4.1.6.4 Quality control checks for plastic and packing materials

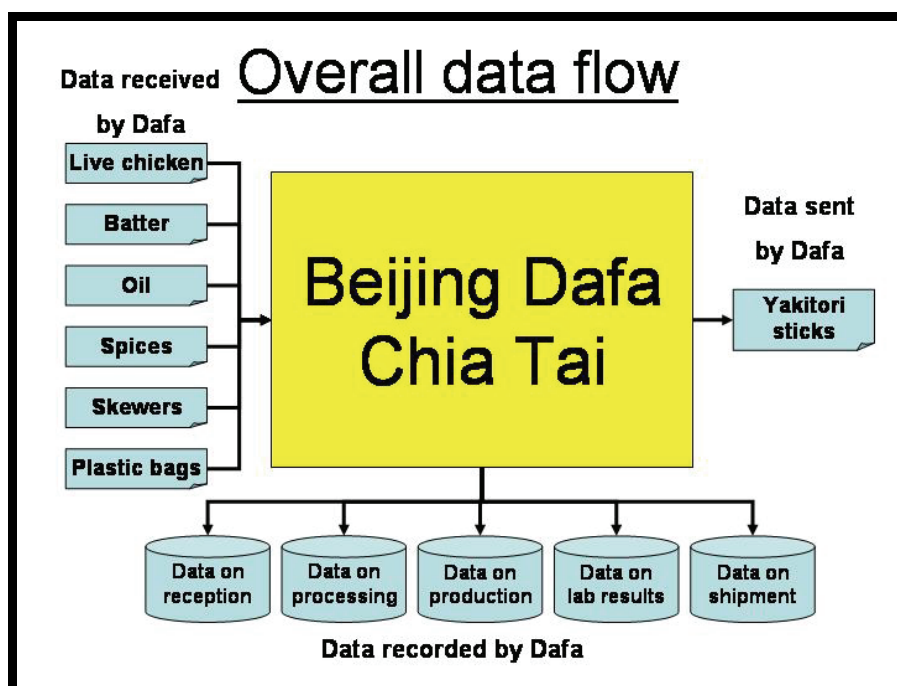
Supplier name	Appearance
Name	Impressed line
Total Quant	Water proof
Sample quantity	Resist folding
Materials	No smell
COA inspection	Foreign materials
Size	Sanitation state
Printing	Conclusions
Conglutinate/seal	Remark

Similar forms and parameter lists exist for oil and for sticks, and are used in the same way.

All in all, the quality control checks on received materials and ingredients are very impressive. The amount of data gathered is overwhelming, and the accuracy and consistency of the data gathering seems to be very good. The obvious room for improvement is linked to the use of these data; with manual, hand-written forms in Chinese the retrievability of the data is limited; both for the authorities, for the customer and for Dafa herself (the company Dafa is consistently referred to as “her”),

4.2 Information flow

For detailed analysis of identifiers, transformations and recordings in this link, see below.



For analysis of overall information flow and loss, see the report for the full chain.

A lot of the data collected come from the examination of the existing Dafa Quality assurance forms. Photocopies of the forms are normally included in a report of this type, but because of the large number of such forms, because many of the same forms were used for different purposes at different parts of the chain, and because they are filled out in Chinese, this was omitted for this report. Below is a list of the most relevant forms we identified, and where the information from those forms went.

Form name	Link	Table
Product inspection report per day, per product	4	3
Metal Detector Calibration and metal detection report	4	3
Product frying inspection record (after)	4	3
Blast freezing report	4	4
Product frying inspection record (after)	4, 3	7, 3
Packing materials inspecting and receiving report (for plastic)	4	7
Flavouring Check back record	3	6
Production inspection report	3	8
Mixture of Batter	3	8
Quarantine record after slaughtering	1	4
Live broilers inspecting record	1	8
Medicine and vaccination	1	
Drugs residue before slaughter	1	
Disease record	1	9
Medication program from farm	1	9

5 Discussion and Conclusion

Dafa must be said to have very Good (manual) Traceability Practice in place already. This is of course partly due to the size of the labour force; the Quality Control department alone numbers around 100 people. The obvious observation is that although there are lots of skilled and very computer-literate people working there (at Dafa in general and in the QC department in particular), there is currently absolutely no use of computers, electronic recording or even reporting from the vast amount of data present. This severely limits the applicability of the data, it makes it in practice impossible to get good reports or industrial statistics, it limits harmonization of recording practices, it makes it more difficult to identify trends, etc.

The conclusion of this analysis is that Dafa need not change their traceability practices; they already record an overwhelming amount of data on dozens of forms. The data recording is frequent, it is more or less standardized (internally), and it is directly or indirectly tied to relevant identifiers (the batch/6 hour shift code in particular). What Dafa should do to gain more benefit from these data, both internally and externally, is to gradually computerize and to some degree automate the data recording and reporting process. Possibilities/recommendations could be as follows:

1. Electronic data recording - internal use. Gradually begin a process where at first only the essential data, but in time more and more of the QA data are entered into a database. This encourages consistency, it increases speed and accuracy, and most importantly, it makes the data searchable and retrievable. Aggregate reports can be produced, and spotting trends will be a lot easier. With the skilled and already computer literate work force, and the amount of data already there, Dafa is over-ripe for entering the (electronic) information age.
2. Electronic data recording – external use. The 5 digit code in the consumer package (for Yakitori sticks only at the moment) is a prime candidate for a key for making more information available to the consumer. Once step 1 has been well started, Dafa should consider what information is not sensitive and possibly relevant to the consumer. Dafa already has an impressive website, www.bjdafa.com. Technologically, once key data are in electronic form, it is fairly simple to implement functionality where by inputting the 5-digit code, the customer can get access to more information about the product. Leading companies are already providing this service in an effort to gain competitive advantage. As an example, on www.terracreta.com, a Greek olive oil producer is using this functionality to promote their brand of olive oil. Using a 5-digit batch code (same as Dafa) the consumer can gain access to information about that particular bottle of oil (the batch it came from), including the name and location of the farmer(s) that supplied the raw materials. There is even a link to Google Earth, so that if the consumer is interested in more information about the geographical origin, the farm coordinates are passed on to Google Earth, and a gradual zoom to a recent satellite photograph of the farm area is provided. Dafa could easily provide the same functionality for geographical information about the farms that supply the chickens, as well as other relevant parameters. The point is that Dafa has a very good system for recording information about origin, processes and products; they should show at least part of this to the world, and use it to strengthen the brand and gain a competitive advantage in the market. This is particularly important now (late 2007/early 2008) with the EU ban on export of Chinese poultry products still being in place.

Once the existing data have been converted into electronic form for easier retrieval, search and reporting, Dafa will have a very good traceability system. To improve it even further, the company could focus more on unique identification.

1. The current Dafa system is based on batch identification, which is fine for identifying inputs, processes and immediate outputs. However, since one Dafa batch of Yakitori sticks may be split into two or more containers, the current batch ID is not suitable as a key for recording information about what happens after the product leaves Dafa. Half of batch 12345 may go into container A, half into container B, but once the products reach the consumer there is no way of identifying if the consumer got a product that was in container A or in container B since the only thing that remains is the number 12345. This is even more important for longer chains which often go through distribution terminals and repackaging. The truck driver who loads a consignment of Yakitori sticks into his truck at a distribution terminal would like to have a unique code or an identifier on those sticks so that he can link the temperature recordings in his truck to those sticks, and document that if something went wrong with some sticks (thawing, for example), it was not the sticks that he was responsible for. With the current identification regime from Dafa this is impossible; all boxes produced on one shift look identical, and have identical numbers on them. A simple way of solving this problem could be to add a sequential code to the existing 5-digit numbers. Dafa produces at most 4-5 tons of Yakitori sticks per shift, and the cardboard boxes are 6kg each so a 3-digit extension would serve to make the cardboard boxes uniquely identified (4 digit extension would be needed to give each plastic bags a unique number). The truck driver could record the fact that he was responsible for 12345-001, 12345-002 and 12345-007 only, and that if any problem was reported related to any other boxes from the 12345 batch, it was not his responsibility.
2. A simple improvement could also be to keep track of which batches were purely from one farm, and which batches had chickens from two farms. The current production regime could be retained, just add the information about which batches were of mixed origin. In case of a farm based recall, in the current system, if chickens from farm XYZ needed to be recalled, all batches which specified XYZ as origin would obviously need to be recalled, but also the last batch from the previous farmer and the first batch from the next farmer in case there was undocumented mixing. Explicit documentation of the mixed batches would reduce the size of the expected recall somewhat. Also, identifying contamination (or farm-related quality problem) would be easier. If a problem was reported, and it related to the first or last batch from a farm, there would be two possibilities when it came to tracking the origin of the problem. If batches of mixed origin were documented explicitly, there would only be one such batch every time the supplier was changed (now there are two), and this would reduce the chance of this "mixed origin" problem.

However, for now the obvious improvement that can be made is in getting the information into electronic form as indicated in step 1 and 2 above

Appendix

1. Step I - Transport of finished goods to distribution terminal or directly to customer

Question to transporter of finished goods	Answer, fill in			Description or example
What type of transport is used?	<i>Conveyor</i>			Truck/vessel/air plane/post/courier/etc.
What type of delivery is it?	<i>Directly</i>			Distribution terminal or directly to supplier, either
How is the vehicle identified?	<i>NR</i>			Registration number of vehicle or name and address (or GLN)
How is the trip identified?	<i>NR</i>			SSCC, transporter code, delivery code, freight code, etc.
Is there a link from vehicle/trip to delivery?	<i>Directly</i>			No/Yes, indirectly/Yes, directly
What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the buyer or given back to the supplier?	<i>NR</i>			List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Buyer" or "Suppl".
Which temperature control method was used?	<i>NR</i>			None/iced/iced and refrigerated/refrigerated/etc
Is temperature logged during transportation?	<i>NR</i>			No/Yes manually/Yes electronically

2. Step I - Collection of finished product

Not relevant. Whole batch is sent to cutting if not quarantine actions is necessary.

3. Step I - Post production storage, quality control, packaging, labelling

Not relevant.

4. Step I - Production ends

Transformation questions, from production	Answer, fill in	Description or example
What type of lot/batch is used for finished product?	Batch = Farmer + Truck ID	Daily/weekly/etc
What is the lot/batch amount?	≥ 36 000 chickens (received in 6 hours)	From-to in kg/ton/etc
How is the lot/batch identified?	Date + Farmer + Truck ID	Unique/Non-unique. Code structure. Internal/Visible number
Can the producer link from identification of lot/batch to shipment of finished product?	Yes directly	No/Yes indirectly/Yes directly (Lot/batch-ID recorded after production and linked to TU-ID)
If the answer above is yes, how is it linked?	Manual	Electronic/manual
What parameters are linked to the finished production batch? How are they recorded; on paper, punched into computer system, automated data gathering?	Quarantine record after slaughtering: Date No Farm name Items Unqualified quantity Handing Handing Newcastle disease Fowl Pos Fowl Leukosis Marek's disease Fowl Cholera Fowl Typhoid Pullorosis Turmour Pertonoitis Gumbro Dermatitis Breast Oedema Inferior Birds Unusual problems Director Veterinary	List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".
Is the finished lot/batch split up, joined together or kept as one?	Kept as one	Split up/joined together/kept as one

5. Step I - During production

Questions production	Answer, fill in	Description or example
How are the batches separated during production?	<i>Physically 10 empty hooks at conveyor between batches</i>	Physically, staged mixing, continuous mixing, etc
1 batch only or many in parallel?	<i>One</i>	One/Many
If many, are they ever mixed?	<i>No</i>	No/Yes
How are batches identified during production?	<i>Farmer + Truck ID</i>	Unique/Non-unique. Code structure. Internal/Visible number
Is this identifier retained or referred to after production?	<i>Yes</i>	No/Yes

6. Step I - Application of ingredients and raw materials

The chicken is put on hooks on a conveyor and kept as one batch.

7. Step I - Raw material/ingredient unpacking, pre production storage, mixing

Not relevant.

8. Step I - Reception of ingredients and raw materials

Transformation questions, reception	Answer, fill in	Description or example
From whom are shipments of this type received?	Contract farmers	Name and address/GLN
Where are shipments of this type received?	Dafa	Name and address/GLN
Description of total amount received?	Full trucks	Full/part containers, full/part trucks, full/part holds, etc
Range of total amount received every time?	Ca 3000 per truck ≥ 30 000 chicken per farmer per day	From-to in kg, ton/etc
How often does reception take place?	Daily	Daily, weekly, etc
How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?	Truck and farmer ID	Trip number/SSCC/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.

Transformation questions, reception	Answer, fill in		Description or example
<p>What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?</p>	<p>Live broilers inspecting record: Date Name of farm Truck no No Broilers quantity Average weight Bird age Quarantine no</p> <p>Medicine and vaccination Drugs residue before slaughter: Item Quantity Physical death Fowl cholera HPAI ND Ascites Emaciated broilers Other Total Disinfecting certificate Ino</p> <p>Drugs residue before slaughter Handing Remark Veterinary name Check Feeder</p> <hr/> <p>Number of chicken per truck</p>		<p>List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate “Discarded”, “Kept” or “Repunched”.</p>
<p>If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?</p>	NR		<p>Trip number/SSCC/none/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.</p>
<p>Can the producer link from the identification of the total amount to LU?</p>	NR		<p>No/Yes indirectly/Yes directly (LU-ID recorded upon collection)</p>
<p>If the answer above is yes, how is it linked?</p>			<p>Electronic/manual</p>

Transformation questions, reception	Answer, fill in	Description or example
What parameters are linked to the each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If LU is divided into TUs; how is each TU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR	GTIN+/other Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from TU-ID to LU-ID?	NR	No/Yes indirectly/Yes directly (TU-ID recorded upon LU-ID)
If the answer above is yes, how is it linked?	NR	Electronic/manual
What parameters are linked to the each LU? -How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
Does a temperature log accompany the shipment?	NR	No/Yes
Is the temperature of the shipment measured on reception?	NR	No/Yes

9. Step I - Transport of ingredients and raw materials

Question to transporter of ingredients and raw materials	Answer, fill in	Description or example
What type of transport is used?	<i>Truck</i>	Truck/vessel/air plane/post/courier/etc.
What type of delivery is it?	<i>Directly</i>	Distribution terminal or directly from supplier, either
How is the vehicle identified?	<i>Truck ID</i>	Registration number of vehicle or name and address (or GLN)
How is the trip identified?	<i>Truck ID + date</i>	SSCC, transporter code, delivery code, freight code, etc.
Is there a link from vehicle/trip to delivery?		No/Yes, indirectly/Yes, directly

Question to transporter of ingredients and raw materials	Answer, fill in	Description or example
What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the buyer or given back to the supplier?	Disease record Medication program from farm Day Age Medicine type Application method Signatures	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Buyer" or "Suppl".
Which temperature control method was used?	NR	None/iced/iced and refrigerated/refrigerated/et c.
Is temperature logged during transportation?	NR	No/Yes manually/Yes electronically

1. Step II - Transport of chicken meat from legs to processing department

Question to transporter of finished goods	Answer, fill in	Description or example
What type of transport is used?	<i>Plastic bags 5 kg</i>	Truck/vessel/ air plane/post/courier/etc.
What type of delivery is it?	<i>Directly</i>	Distribution terminal or directly to supplier, either
How is the vehicle identified?	<i>NR, conveyor</i>	Registration number of vehicle or name and address (or GLN)
How is the trip identified?	<i>NR</i>	SSCC, transporter code, delivery code, freight code, etc.
Is there a link from vehicle/trip to delivery?	<i>NR</i>	No/Yes, indirectly/Yes, directly
What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the buyer or given back to the supplier?	<i>NR</i>	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Buyer" or "Suppl".
Which temperature control method was used?	<i>None</i>	None/iced/iced and refrigerated/refrigerated/etc .
Is temperature logged during transportation?	<i>No</i>	No/Yes manually/Yes electronically

2. Step II - Collection of finished product

Not relevant.

3. Step II - Post production storage, quality control, packaging, labelling

Not relevant.

4. Step II - Production ends

Transformation questions, from production	Answer, fill in	Description or example
What type of lot/batch is used for finished product?	5kg bags of chicken meat, produced continually	Daily/weekly/etc
What is the lot/batch amount?	4-5 tons per shift, 5kg per bag	From-to in kg/ton/etc
How is the lot/batch identified?	Internal, indirectly by time	Unique/Non-unique. Code structure. Internal/Visible number
Can the producer link from identification of lot/batch to shipment of finished product?	Yes directly	No/Yes indirectly/Yes directly (Lot/batch-ID recorded after production and linked to TU-ID)
If the answer above is yes, how is it linked?	Manual	Electronic/manual
What parameters are linked to the finished production batch? How are they recorded; on paper, punched into computer system, automated data gathering?		List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".
Is the finished lot/batch split up, joined together or kept as one?	Split up	Split up/joined together/kept as one

5. Step II - During production

Questions production	Answer, fill in	Description or example
How are the batches separated during production?	<i>Continuous production, no separation, but approximately first-in, first-out.</i>	Physically, staged mixing, continuous mixing, etc
1 batch only or many in parallel?	<i>Many</i>	One/Many
If many, are they ever mixed?	<i>Mixed</i>	No/Yes
How are batches identified during production?	<i>Internal</i>	Unique/Non-unique. Code structure. Internal/Visible number
Is this identifier retained or referred to after production?	Yes	No/Yes

6. Step II - Application of ingredients and raw materials – Chicken carcasses

Not relevant.

7. Step II - Raw material/ingredient unpacking, pre production storage, mixing – Chicken carcasses

Not relevant.

8. Step II - Reception of ingredients and raw materials –Chicken carcasses

Transformation questions, reception	Answer, fill in	Description or example
From whom are shipments of this type received?	Slaughtery department	Name and address/GLN
Where are shipments of this type received?	Cutting department	Name and address/GLN
Description of total amount received?	Conveyer ≤ 140 000 per day	Full/part containers, full/part trucks, full/part holds, etc
Range of total amount received every time?	≥10 000	From-to in kg, ton/etc
How often does reception take place?	Continuous daily	Daily, weekly, etc
How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?	date + Farmer + Truck ID	Trip number/SSCC/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.

Transformation questions, reception	Answer, fill in		Description or example
What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?			List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR		Trip number/SSCC/none/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from the identification of the total amount to LU?	NR		No/Yes indirectly/Yes directly (LU-ID recorded upon collection)
If the answer above is yes, how is it linked?			Electronic/manual
What parameters are linked to the each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If LU is divided into TUs; how is each TU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR		GTIN+/other Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from TU-ID to LU-ID?	NR		No/Yes indirectly/Yes directly (TU-ID recorded upon LU-ID)
If the answer above is yes, how is it linked?			Electronic/manual
What parameters are linked to the each LU? -How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
Does a temperature log accompany the shipment?	NR		No/Yes
Is the temperature of the shipment measured on reception?	NR		No/Yes

9. Step II - Transport of ingredients and raw materials – Chicken carcasses.

Received on conveyor directly from reception department; identical to table 1 for step I.

1. Step III - Transport of finished goods to freezing and packaging department

Internal transport in plastic bins

2. Step III - Collection of finished product – Chicken nuggets

Transformation questions, shipping	Answer, fill in	Description or example
To whom are shipments of this type delivered?	Packaging department	Name and address/GLN
From where are shipments of this type shipped?	Frying department	Name and address/GLN
Description of the total amount collected?	Total amount at shift	Full/part containers, full/part trucks, full/part holds/etc
Range of total amount collected every time?	4-5 tons	From-to in kg/ton/other number relating to TU/LU
How often does collection take place?	Continuously daily when nuggets are produced	Daily/weekly/etc
How is the total collected amount identified? What type of code and media?	Farmer	Trip number/SSCC ¹ /etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?	NR	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Tran", "Sent" or "Via".
If collected amount is divided into LUs; how is each LU identified? What type of code and media?	NR	Trip number/SSCC/none/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from the identification of the total amount to each LU?	NR	No/Yes indirectly/Yes directly (LU-ID recorded upon collection)

¹ Each logistic unit is often marked with a **Serial Shipping Container Code (SSCC)** which uniquely identifies the company and the particular logistic unit.

Transformation questions, shipping	Answer, fill in	Description or example
If the answer above is yes, how is it linked?		Electronic/manual
What parameters are linked to each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?	NR	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Tran", "Sent" or "Via".
If LU is divided into TUs; how is each TU identified? What type of code and media?	NR	GTIN+/other Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from TU-ID to LU-ID?	NR	No/Yes indirectly/Yes directly (TU-ID recorded upon LU-ID)
If the answer above is yes, how is it linked?		Electronic/manual
What parameters are linked to each TU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?	NR	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Tran", "Sent" or "Via".
Does a temperature log accompany the shipment?	NR	No/Yes
Is the temperature of the shipment measured on collection?	NR	No/Yes

3. Step III - Post production storage, quality control, packaging, labelling

Questions post-production	Answer, fill in	Description or example
What is the name/type of the product?	Chicken nuggets	Identifying description or name of the product
What is the product condition?	Ambient	Ambient/chilled/frozen/etc
Which storage method is used post-production?		Boxed/bulked/seawater tanks/brine tanks/cold storage/etc.

Questions post-production	Answer, fill in	Description or example
What type of transport from process to packaging is used?	Conveyer	Not needed/Flow line/Fork-lift/By hand/etc.
Is a label used, if so, what type?	none	Clear text, barcode/Radio Frequency Identification-number (RFID)/none/etc.
If a label is used, what information is on it?		Name of the company/date and time of production/date of durability etc
What quality control checks are linked to the finished product? How are they recorded; on paper, punched into computer system, automated data gathering?	<i>Product frying inspection record (after):</i> <i>Product temp</i> <i>Middle</i> <i>Left</i> <i>Right</i> <i>Average</i>	List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".
Which temperature control method was used?	None	None/iced/iced and refrigerated/refrigerated/etc
Is the storage/display temperature shown or recorded?	No	No/Shown only/Recorded manually/Recorded electronically

4. Step III - Production ends

Transformation questions, from production	Answer, fill in	Description or example
What type of lot/batch is used for finished product?	20kg bins of chicken nuggets, produced continually	Daily/weekly/etc
What is the lot/batch amount?	4-5 tons per shift, 20kg per bin	From-to in kg/ton/etc
How is the lot/batch identified?	Internal, indirectly by time	Unique/Non-unique. Code structure. Internal/Visible number
Can the producer link from identification of lot/batch to shipment of finished product?	Yes directly	No/Yes indirectly/Yes directly (Lot/batch-ID recorded after production and linked to TU-ID)
If the answer above is yes, how is it linked?	Manual	Electronic/manual
What parameters are linked to the finished production batch? How are they recorded; on paper, punched into computer system, automated data gathering?		List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".
Is the finished lot/batch split up, joined together or kept as one?		Split up/joined together/kept as one

5. Step III - During production

Questions production	Answer, fill in	Description or example
How are the batches separated during production?	6 Fryers	Physically, staged mixing, continuous mixing, etc
1 batch only or many in parallel?	Many	One/Many
If many, are they ever mixed?	Mixed	No/Yes
How are batches identified during production?		Unique/Non-unique. Code structure. Internal/Visible number
Is this identifier retained or referred to after production?	Yes	No/Yes

6. Step III - Application of ingredients and raw materials - Each type one table

Transformation questions, into production	Answer, fill in		Description or example
Can the producer link from identification of ingredients and raw materials to identification of lot/batch?	<i>Yes directly</i>		No/Yes indirectly/Yes directly (ingredients and raw materials ID recorded under production)
If the answer above is yes, how is it linked?	Manually		Electronic/manual
Is the ingredient/raw material split up, joined together or kept as one?	<i>Kept as one</i>		Split up/joined together/kept as one
What parameters are recorded to document the application of this ingredient/raw material? How are they recorded; on paper, punched into computer system, automated data gathering?	<i>NR</i>		List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".

7. Step III - Raw material/ingredient unpacking, pre production storage, mixing

Questions pre-production	Answer, fill in		Description or example
Storage type for this raw material/ingredient as it enters production?			Whole shipment as received/each LU as received/each TU as received, in local tank, etc.
Relationship from the above to received shipments?			1:1 with shipment/LU/TU, split, joined, mixed, added in queue, etc.
Identification of this raw material/ingredient as it enters production?			As before, by date/time, by tank number, by other reference
What quality control checks are linked to the raw materials/ingredients pre-production? How are they recorded; on paper, punched into computer system, automated data gathering?	<i>Product frying inspection record (after: Average Weigh Colour Taste Remark</i>		List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".
Which temperature control method was used?			None/iced/iced and refrigerated/refrigerated/et c.
Is the storage/display temperature shown or recorded?			No/Shown only/Recorded manually/Recorded electronically

8. Step III - Reception of ingredients and raw materials – Each type one table

Transformation questions, reception	Answer, fill in		Description or example
From whom are shipments of this type received?	Cutting department		Name and address/GLN
Where are shipments of this type received?	Processing dept		Name and address/GLN
Description of total amount received?	4-5 tons		Full/part containers, full/part trucks, full/part holds, etc
Range of total amount received every time?	5 kg plastic bins		From-to in kg, ton/etc
How often does reception take place?	Continuous daily		Daily, weekly, etc
How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?	Indirect batch ID		Trip number/SSCC/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	Production inspection report: (Pr 1 our) Weight Shape of piece Blood Appearance Temperature	P P P P P	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR		Trip number/SSCC/none/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from the identification of the total amount to LU?	NR		No/Yes indirectly/Yes directly (LU-ID recorded upon collection)
If the answer above is yes, how is it linked?			Electronic/manual
What parameters are linked to the each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If LU is divided into TUs; how is each TU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR		GTIN+/other Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.

Transformation questions, reception	Answer, fill in	Description or example
Can the producer link from TU-ID to LU-ID?	NR	No/Yes indirectly/Yes directly (TU-ID recorded upon LU-ID)
If the answer above is yes, how is it linked?		Electronic/manual
What parameters are linked to the each LU? -How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
Does a temperature log accompany the shipment?	0-5 degree C	No/Yes
Is the temperature of the shipment measured on reception?	No	No/Yes

1. Step IV/V - Transport of finished goods to distribution terminal or directly to customer

Question to transporter of finished goods	Answer, fill in	Description or example
What type of transport is used?	<i>Container -Truck and ship Mixed container</i>	Truck/vessel/ air plane/post/courier/etc.
What type of delivery is it?	<i>Trough a importer in Japan, Distribution terminal</i>	Distribution terminal or directly to supplier, either
How is the vehicle identified?	<i>Container number pr container CAQ</i>	Registration number of vehicle or name and address (or GLN)
How is the trip identified?	<i>Container can contain production dates from more than one prod date</i>	SSCC, transporter code, delivery code, freight code, etc.
Is there a link from vehicle/trip to delivery?		No/Yes, indirectly/Yes, directly
What parameters are linked to this transport? How are they recorded; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the buyer or given back to the supplier?		<i>Fax</i> List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Buyer" or "Suppl".
Which temperature control method was used?	<i>Refrigerated</i>	None/iced/iced and refrigerated/refrigerated/etc
Is temperature logged during transportation?	Yes	No/Yes manually/Yes electronically

2. Step IV/V - Collection of finished product

Transformation questions, shipping	Answer, fill in	Description or example																				
To whom are shipments of this type delivered?	One importer	Name and address/GLN																				
From where are shipments of this type shipped?	DAFA	Name and address/GLN																				
Description of the total amount collected?	Part container	Full/part containers, full/part trucks, full/part holds/etc																				
Range of total amount collected every time?	Varying	From-to in kg/ton/other number relating to TU/LU																				
How often does collection take place?	Daily – once a month	Daily/weekly/etc																				
How is the total collected amount identified? What type of code and media?	Container code	Trip number/SSCC ² /etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.																				
What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?	<table border="1"> <tr><td>Customer</td><td>P</td></tr> <tr><td>Contract number</td><td>P</td></tr> <tr><td>Product name</td><td>P</td></tr> <tr><td>Container number</td><td>P</td></tr> <tr><td>Code</td><td>P</td></tr> <tr><td>Specification</td><td>P</td></tr> <tr><td>Container temp</td><td>P</td></tr> <tr><td>Product temp</td><td>P</td></tr> <tr><td>Start time loading</td><td>P</td></tr> <tr><td>End time loading</td><td>P</td></tr> </table>	Customer	P	Contract number	P	Product name	P	Container number	P	Code	P	Specification	P	Container temp	P	Product temp	P	Start time loading	P	End time loading	P	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Tran", "Sent" or "Via".
Customer	P																					
Contract number	P																					
Product name	P																					
Container number	P																					
Code	P																					
Specification	P																					
Container temp	P																					
Product temp	P																					
Start time loading	P																					
End time loading	P																					
If collected amount is divided into LUs; how is each LU identified? What type of code and media?	<p>Cardboard boxes (LU), ca 6 kg, 5 sticks pr bag, 12 bags per box</p> <p>ID= non unique, owner code (structured – farmer , production date relation)</p> <p>23413 =(internal customer reference number)</p> <p>3DOCo297J1 3 = Batch ID (ID pr 1/2 shift, DO = processing person(s) C029 = Chicken Farm code (the batch's majority supplier) 7J1= production date</p>	Trip number/SSCC/none/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.																				
Can the producer link from	Yes directly	No/Yes indirectly/Yes																				

² Each logistic unit is often marked with a **Serial Shipping Container Code (SSCC)** which uniquely identifies the company and the particular logistic unit.

Transformation questions, shipping	Answer, fill in		Description or example
the identification of the total amount to each LU?			directly (LU-ID recorded upon collection)
If the answer above is yes, how is it linked?	Manual		Electronic/manual
What parameters are linked to each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?	Carton number Lot number Number of pieces Best before dates Ingredients (Fixed)	P P P P P	List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Tran", "Sent" or "Via".
If LU is divided into TUs; how is each TU identified? What type of code and media?	Non unique Customer reference number (23513)		GTIN+/other Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from TU-ID to LU-ID?	NR		No/Yes indirectly/Yes directly (TU-ID recorded upon LU-ID)
If the answer above is yes, how is it linked?			Electronic/manual
What parameters are linked to each TU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they kept for own use only, given to the transporter, sent directly to the buyer, or sent to the buyer via the transporter?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Own", "Tran", "Sent" or "Via".
Does a temperature log accompany the shipment?	No		No/Yes
Is the temperature of the shipment measured on collection?	No		No/Yes

3. Step IV/V - Post production storage, quality control, packaging, labelling

Questions post-production	Answer, fill in		Description or example
What is the name/type of the product?	Chicken nuggets on stick		Identifying description or name of the product
What is the product condition?	Frozen		Ambient/chilled/frozen/etc
Which storage method is used post-production?	Paper box Local cold storage		Boxed/bulked/seawater tanks/brine tanks/cold storage/etc.
What type of transport from process to packaging is used?	Manual		Not needed/Flow line/Fork-lift/By hand/etc.
Is a label used, if so, what type?	Clear text on label		Clear text, barcode/Radio Frequency Identification-number (RFID)/none/etc.
If a label is used, what information is on it?	Traceability code Best before		Name of the company/date and time of production/date of durability etc
What quality control checks are linked to the finished product? How are they recorded; on paper, punched into computer system, automated data gathering?	<p>Product inspection report per day, per product</p> <p>E-coli Total bacterial count Listeria Etc. Taste - sensory Stick pointing out Y/N Surface OK Y/N Nuggets sticking together Y/N Nugget cracked Y/N Handle 1,5-2 Colour OK Weight pr stick</p> <p>Metal Detector Calibration and metal detection report: Time Vcrity Craft no Sensitivity (min) Fe, S.S, Non Fe Rcsult Speed Detected thing Cortcct action</p>	<p>Paper Paper Paper Paper Paper Paper Paper Paper Paper Paper Paper</p>	List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".

Questions post-production	Answer, fill in	Description or example
	Product frying inspection record (after): Product temp Middle Left Right Average	
Which temperature control method was used?	Refrigerated -18 C	None/iced/iced and refrigerated/refrigerated/etc
Is the storage/display temperature shown or recorded?	Yes	No/Shown only/Recorded manually/Recorded electronically

4. Step IV/V - Production ends

Transformation questions, from production	Answer, fill in	Description or example
What type of lot/batch is used for finished product?	½ Shift = 6 our	Daily/weekly/etc
What is the lot/batch amount?	4-5 tons (6 ours)	From-to in kg/ton/etc
How is the lot/batch identified?	Traceability code Batch may be split	Unique/Non-unique. Code structure. Internal/Visible number
Can the producer link from identification of lot/batch to shipment of finished product?	Yes directly	No/Yes indirectly/Yes directly (Lot/batch-ID recorded after production and linked to TU-ID)
If the answer above is yes, how is it linked?	Manual	Electronic/manual
What parameters are linked to the finished production batch? How are they recorded; on paper, punched into computer system, automated data gathering?	Blast freezing report: Time Product name Craft no Frozen Product temp before freezing Machine no (freezer no) Product temp after freezing Weight after freezing Area temperature	P P P P P P P P P P
Is the finished lot/batch split up, joined together or kept as one?	Split up	Split up/joined together/kept as one

5. Step IV/V - During production

Questions production	Answer, fill in	Description or example
How are the batches separated during production?	<i>Continuous</i> <i>(Break between batch 2 and 3, new date)</i>	Physically, staged mixing, continuous mixing, etc
1 batch only or many in parallel?	<i>Three freezers</i> <i>Many</i>	One/Many
If many, are they ever mixed?		No/Yes
How are batches identified during production?	<i>Traceability number</i>	Unique/Non-unique. Code structure. Internal/Visible number
Is this identifier retained or referred to after production?	Yes	No/Yes

6. Step IV/V - Application of ingredients and raw materials - Each type one table

Transformation questions, into production	Answer, fill in	Description or example
Can the producer link from identification of ingredients and raw materials to identification of lot/batch?	<i>Yes directly</i>	No/Yes indirectly/Yes directly (ingredients and raw materials ID recorded under production)
If the answer above is yes, how is it linked?	Manual	Electronic/manual
Is the ingredient/raw material split up, joined together or kept as one?	<i>Split up</i>	Split up/joined together/kept as one
What parameters are recorded to document the application of this ingredient/raw material? How are they recorded; on paper, punched into computer system, automated data gathering?	<i>NR</i>	List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".

7. Step IV/V - Raw material/ingredient unpacking, pre production storage, mixing – nuggets

Questions pre-production	Answer, fill in	Description or example
Storage type for this raw material/ingredient as it enters production?	<i>Whole shipment as received</i>	Whole shipment as received/each LU as received/each TU as received, in local tank, etc.
Relationship from the above to received shipments?	<i>1:1</i>	1:1 with shipment/LU/TU, split, joined, mixed, added in queue, etc.
Identification of this raw material/ingredient as it enters production?	<i>As before</i>	As before, by date/time, by tank number, by other reference
What quality control checks are linked to the raw materials/ingredients pre-production? How are they recorded; on paper, punched into computer system, automated data gathering?	Product frying inspection record (after): <i>Average Weigh Colour Taste Remark</i>	List of parameters. For each parameter, indicate "Paper", "ComPunch" or "ComAuto".
Which temperature control method was used?	NR	None/iced/iced and refrigerated/refrigerated/et c.
Is the storage/display temperature shown or recorded?	NR	No/Shown only/Recorded manually/Recorded electronically

8. Step IV/V - Reception of ingredients and raw materials

Transformation questions, reception	Answer, fill in	Description or example
From whom are shipments of this type received?	Frying department	Name and address/GLN
Where are shipments of this type received?	Freezing and packaging department	Name and address/GLN
Description of total amount received?	4-5 tons	Full/part containers, full/part trucks, full/part holds, etc
Range of total amount received every time?	In plastic bins	From-to in kg, ton/etc
How often does reception take place?	Daily	Daily, weekly, etc
How is the total received amount identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR	Trip number/SSCC/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.

Transformation questions, reception	Answer, fill in		Description or example
What parameters are linked to the whole shipment? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If received amount is divided into LUs; how is each LU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR		Trip number/SSCC/none/etc Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from the identification of the total amount to LU?	NR		No/Yes indirectly/Yes directly (LU-ID recorded upon collection)
If the answer above is yes, how is it linked?	NR		Electronic/manual
What parameters are linked to the each LU? How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
If LU is divided into TUs; how is each TU identified? What type of code and media? Is this identifier discarded or recorded and kept?	NR		GTIN+/other Unique/Non-unique. Sequential/Structured Bar-code/RF-ID/Direct reference (label)/Indirect reference, etc.
Can the producer link from TU-ID to LU-ID?	NR		No/Yes indirectly/Yes directly (TU-ID recorded upon LU-ID)
If the answer above is yes, how is it linked?			Electronic/manual
What parameters are linked to the each LU? -How are they transmitted; on Label, Paper, Fax, Electronically, Other? Are they recorded on reception?	NR		List of parameters. For each parameter, indicate L/P/F/E/O for type of transmission. For each parameter, indicate "Discarded", "Kept" or "Repunched".
Does a temperature log accompany the shipment?	NR		No/Yes
Is the temperature of the shipment measured on reception?	NR		No/Yes



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