

C. SECTOR SPECIFIC TECHNOLOGIES

1. Agriculture – Crops (Agriculture)

C1.0 Information on production planning and propriety characteristics

Question: Over the year [2019], which of these sources of information was relevant to this establishment decisions for pre-cultivation, cultivation, and harvesting?	Variable	Answer
Radio (e.g. agrometeorological information, agriculture programming, advertisements)	c1_0a1	1 = Yes 2 = No -9 = Don't know
TV (e.g. agrometeorological information, agriculture programming, advertisements)	c1_0a2	1 = Yes 2 = No -9 = Don't know
Non-internet mobile phone (e.g. SMS, Voice Calling)	c1_0a3	1 = Yes 2 = No -9 = Don't know
Mobile internet technologies (e.g. YouTube, WhatsApp, Facebook, Skype, Email, and other web applications)	c1_0a4	1 = Yes 2 = No -9 = Don't know
Meetings with other producers, producer organizations, or cooperative	c1_0a5	1 = Yes 2 = No -9 = Don't know
Demonstration or visit by public- or private-extension agents (e.g. NGOs, Agribusiness Buyers etc.)	c1_0a6	1 = Yes 2 = No -9 = Don't know
Precision agriculture tools (e.g. Farm management software, soil sensors, satellite imaging, real time data, drones, apps)	c1_0a7	1 = Yes 2 = No -9 = Don't know

Question	Variable	Answer
What was the most relevant source of information to support your decisions regarding pre-cultivation, cultivation, and harvesting during the last agricultural season?	c1_0b1	1= Radio 2 = TV 3 = Mobile phone (Non-Internet) 4 = Internet 5 = Cooperative 6 = Extension agents 7 = Farm management software 8 = Other

INTERVIEWER: Please include ALL LAND REGARDLESS OF LOCATION OR USE.

Question: What is the total amount of land owned, rented, or used by this establishment?	Variable	Answer
Total number of acres OWNED	c1_0c1	Number
Total number of acres RENTED or LEASED FROM OTHERS	c1_0c2	Number
Number of acres RENTED or LEASED TO OTHERS	c1_0c3	Number
Total number of acres available for this establishment (CAPI: CALCULATE THE NUMBER)	c1_0c4 = (c1_0c1 + c1_0c2 - c1_0c3)	Number

Question	Variable	Answer
How many tractors are owned by this establishment?	c1_0c5	(number of tractors)
Does this establishment use rent tractor, equipment, or machines?	c1_0c6	1 = Yes 2 = No -7 = Not applicable
Does this establishment use any digital or online platform for renting a tractor, equipment, or machine (e.g. Uber tractor)? [CONDITION: ask this question only if c1_0c6=1]	c1_0c7	1 = Yes 2 = No -9 = Don't know

Question	Variable	Answer
What is the main source of seeds used by this establishment?	c1_0d1	1 = Own production 2 = Private providers 3 = Public programs 4 = Other
Does the seed receive any pre-treatment?	c1_0d2	1 = Yes 2 = No -9 = Don't know

C1.1 Land preparation

Question	Variable	Answer
Does this establishment conduct land preparation through its own workers? [SKIP: If c1_1a1=1 go to question c1_1b1]	c1_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same enterprise? [CONDITION: Only for multi-establishment farm (s4=1)] [SKIP: If c1_1a2=1 go to question c1_1b1]	c1_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another enterprise? [SKIP: Go to question c1_2a1]	c1_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for land preparation method is used in this farm?	Variable	Answer	
Manual plowing with simple tools (hand-held hoes, split-hoes, rake)	c1_1b1	1 = Yes 2 = No	-9 = Don't know
Animal Aided Instruments (ploughs)	c1_1b2	1 = Yes 2 = No	-9 = Don't know
Tractors, motor tillers, rotators, or other equipment manually operated by workers	c1_1b3	1 = Yes 2 = No	-9 = Don't know
Tractors or other equipment supported by digital enabled technologies (e.g. GPS, software, or precision agriculture tools)	c1_1b4	1 = Yes 2 = No	-9 = Don't know
Other	c1_1b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the land preparation method used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c1_1b variables]	Variable c1_1c	Answer 1 = Manual plowing with simple tools 2 = Animal Aided Instruments (ploughs) 3 = Tractors, motor tillers, rotovators, equipment manually operated by workers 4 = Tractors or equipment supported by digital-enabled technologies such as GPS or software 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using digital-enabled tractors, equipment, or precision agriculture tools for land preparation? [CONDITION: ask only if c1_1b4=1]	c1_1d	(Number of years)

C1.2 Irrigation

Question	Variable	Answer
Does this establishment production require any irrigation? [SKIP: If c1_2a1=1 go to question c1_2b1]	c1_2a1	1 = Yes 2 = No -7 = Not applicable

Question: Does this establishment use any of the following methods for irrigation?	Variable	Answer	
Rain-fed, no additional irrigation	c1_2b1	1 = Yes 2 = No	-9 = Don't know
Manual irrigation with watering cans	c1_2b2	1 = Yes 2 = No	-9 = Don't know
Surface Flood Irrigation by Gravity	c1_2b3	1 = Yes 2 = No	-9 = Don't know
Irrigation by Small Pump	c1_2b4	1 = Yes 2 = No	-9 = Don't know

Drip irrigation, localized irrigation, underground pipes, Sprinkler or Center Pivot.	c1_2b5	1 = Yes 2 = No	-9 = Don't know
Automated system controlled by sensors, software, Internet, or apps	c1_2b6	1 = Yes 2 = No	-9 = Don't know
Other	c1_2b7	1 = Yes 2 = No	-9 = Don't know

Question: What is the irrigation system used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c1_2b variables]	Variable c1_2c	Answer 1 = Rain-fed, no additional irrigation 2 = Manual irrigation with watering cans 3 = Surface Flood Irrigation by Gravity 4 = Irrigation by Small Pump 5 = Drip irrigation, localized irrigation, underground pipes, Sprinkler or Center Pivot. 6 = Automated system controlled by sensors, software, Internet, or apps 7 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using drip irrigation, localized irrigation, underground pipes, sprinkler, center pivot or precision agriculture tools for irrigation? [CONDITION: ask this question only if c1_2b5=1 or c1_2b6=1]	c1_2d	(Number of years)

C1.3 Weeding and pest control

Question	Variable	Answer
Does this farm conduct weeding and pest control? [SKIP: If c1_3a1=1 go to question c1_3b1]	c1_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same enterprise? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c1_3a2=1 go to question c1_3b1]	c1_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another enterprise? [SKIP: Go to question c1_4a1]	c1_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for weeding and pest control?	Variable	Answer	
Manual application of herbicide, fertilizer, or pesticide	c1_3b1	1 = Yes 2 = No	-9 = Don't know
Mechanical application of herbicide, fertilizer, or pesticide	c1_3b2	1 = Yes 2 = No	-9 = Don't know

Biological methods of fertilizing, weed, or pest control	c1_3b3	1 = Yes 2 = No	-9 = Don't know
Fully-automated Variable Rate Application (VRA) tools in combination with soil and plant sensors (Precision Agriculture)	c1_3b4	1 = Yes 2 = No	-9 = Don't know
Drone Application in combination with remote sensing or on-site sensors (Advanced Precision Agriculture)	c1_3b5	1 = Yes 2 = No	-9 = Don't know
Other	c1_3b6	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the weeding and pest control method used more often in this propriety? [CONDITION: Ask only if the answer is YES for more than one option among c1_3b variables]</p>	<p>Variable c1_3c</p>	<p>Answer 1 = Manual application of organic herbicide, fertilizer, or pesticide 2 = Manual application of chemical herbicide, fertilizer, or pesticide 3 = Mechanical application of organic herbicide, fertilizer, or pesticide 4 = Mechanical application of chemical herbicide, fertilizer, or pesticide 5 = Biological methods of fertilizing, weed, and pest control 6 = Fully-automated Variable Rate Application (VRA) tools in combination with soil and plant sensors (Precision Agriculture) 7 = Drone Application in combination with remote sensing or on-site sensors (Advanced Precision Agriculture) 8 = Other -9 = Don't know</p>
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Question	Variable	Answer
For how many years has this establishment been using VRA or drone application for weeding and pest control? [CONDITION: ask this question only if c1_3b6=1 or c1_3b7=1]	c1_3d	(Number of years)

Question	Variable	Answer
Does this establishment use organic or chemical herbicide, fertilizer, or pesticide for weeding and pest control? [CONDITION: ASK ONLY IF c1_3b1=1 or c1_3b1=2]	c1_3e	1 = Organic 2 = Chemical 3 = Both -9 = Don't know

C1.4 Harvesting, training, pruning

Question	Variable	Answer
Does this establishment conduct harvesting, training or pruning? [SKIP: If c1_4a1=1 go to question c1_4b1]	c1_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same enterprise? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c1_4a2=1 go to question c1_4b1]	c1_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c1_5a1]	c1_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for harvesting, training, or pruning?	Variable	Answer	
Manual harvesting, training, pruning, or picking	c1_4b1	1 = Yes 2 = No	-9 = Don't know
Animal Aided Instruments	c1_4b2	1 = Yes 2 = No	-9 = Don't know
Human-operated machines or single-axle tractor, with one specific function	c1_4b3	1 = Yes 2 = No	-9 = Don't know
Mechanized process with machines or tractors that combine multiple functions fully operated by the worker (without support of digital technologies)	c1_4b4	1 = Yes 2 = No	-9 = Don't know
Automated process with machines or tractors that combine multiple functions supported by digital enabled technologies (e.g. GPS or computing systems integrated to tractor)	c1_4b5	1 = Yes 2 = No	-9 = Don't know
Other	c1_4b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the harvesting/training/ pruning method used more often in this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c1_4b variables]	Variable	Answer
	c1_4c	1 = Manual harvesting, training, pruning, or picking 2 = Animal Aided Instruments 3 = Human-operated machines or single -axle tractor, with one specific function 4 = Mechanized process with machines or tractors that combine multiple functions (e.g. Combine harvester) fully operated by the worker (without support of digital technologies) 5 = Automated process with machines or tractors that combine multiple functions supported by digital enabled technologies (e.g. GPS or computing systems integrated to tractor) 6 = Other -9 = Don't know

Question	Variable	Answer
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For how many years has this establishment been using mechanized or automated processes for harvesting/training/pruning? [CONDITION: ask this question only if c1_4b4=1 or c1_4b5=1]	c1_4d	(Number of years)
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C1.5 Storage (Post-Harvesting)

Question	Variable	Answer
Does this farm storage its products in house? [SKIP: If c1_5a1=1 go to question c1_5b1]	c1_5a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c1_5a2=1 go to question c1_5b1]	c1_5a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c1_6a1]	c1_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following types of storage facility?	Variable	Answer	
Precarious facility with product totally or partially exposed to sun, rain and wind	c1_5b1	1 = Yes 2 = No	-9 = Don't know
Storage facilities protecting from sun, rain, or wind, but without controlled temperature	c1_5b2	1 = Yes 2 = No	-9 = Don't know
Special Storage facilities with cold or dry controlled environment	c1_5b3	1 = Yes 2 = No	-9 = Don't know
High-end central storage facilities, with controlled atmosphere and temperature	c1_5b4	1 = Yes 2 = No	-9 = Don't know
Continuous temperature monitoring device or digital data loggers	c1_5b5	1 = Yes 2 = No	-9 = Don't know
Other	c1_5b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the storage facility used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c1_5b variables]	Variable	Answer
	c1_5c	1 = Precarious facility with product totally or partially exposed to sun, rain and wind 2 = Storage facilities protecting from sun, rain, or wind, but without controlled temperature 3 = Special Storage facilities with cold or dry controlled environment 4 = High-end central storage facilities, with controlled atmosphere and temperature 5 = Continuous temperature monitoring device or digital data loggers 6 = Other -9 = Don't know

Question	Variable	Answer
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For how many years has this establishment been using special storage facilities or high-end central storage facilities or continuous temperature monitoring devices for storage? [CONDITION: ask this question only if c1_5b3=1 or c1_5b4=1 or c1_5b5=1]	c1_5d	(Number of years)
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C1.6 Packing (Post-Harvesting)

Question	Variable	Answer
Does this farm pack in house? [SKIP: If c1_6a1=1 go to question c1_6b1]	c1_6a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c1_6a2=1 go to question c1_6b1]	c1_6a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	c1_6a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following packing methods?	Variable	Answer	
Manual packing in bags, crates, or boxes	c1_6b1	1 = Yes 2 = No	-9 = Don't know
Human-operated mechanical equipment for packing in bags, crates, or boxes	c1_6b2	1 = Yes 2 = No	-9 = Don't know
Automated packing directly linked to the harvesting, training, pruning, or picking process	c1_6b3	1 = Yes 2 = No	-9 = Don't know
Modified atmosphere packing	c1_6b4	1 = Yes 2 = No	-9 = Don't know
Other	c1_6b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the packing method used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c1_6b variables]	Variable c1_6c	Answer
		1 = Manual packing in bags, crates, or boxes 2 = Human-operated mechanical equipment for packing in bags, crates, or boxes 3 = Automated packing directly linked to the harvesting, training, pruning, or picking process 4 = Modified atmosphere packing 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using automated packing or modified atmosphere packing for packing? [CONDITION: ask this question only if c1_6b3=1 or c1_6b4=1]	c1_6d	(Number of years)

2. Livestock (Agriculture)

C2.0. Information for production planning

Question: Over the year [2019], which of these sources of information was relevant to this establishment production decisions?	Variable	Answer
Radio (e.g. agriculture programming, advertisements)	c2_0a1	1 = Yes 2 = No -9 = Don't know
TV (e.g. agriculture programming, advertisements)	c2_0a2	1 = Yes 2 = No -9 = Don't know
Non-internet mobile phone (SMS, Voice Calling)	c2_0a3	1 = Yes 2 = No -9 = Don't know
Mobile internet technologies (e.g. YouTube, WhatsApp, Facebook, Skype, Email, and other web applications)	c2_0a4	1 = Yes 2 = No -9 = Don't know
Meetings with other producers, producer organizations, or cooperative	c2_0a5	1 = Yes 2 = No -9 = Don't know
Demonstration or visit by public- or private-extension agents (e.g. NGOs, Agribusiness Buyers etc.)	c2_0a6	1 = Yes 2 = No -9 = Don't know
Precision agriculture tools (Farm management software connected to Internet and other tool related to precision agriculture)	c2_0a7	1 = Yes 2 = No -9 = Don't know

Question	Variable	Answer
What was the most relevant source of information to support the production decisions of this establishment?	c2_0b	1 = Radio 2 = TV 3 = Mobile phone (Non-Internet) 4 = Internet 5 = Other producers 6 = Extension agents 7 = Farm management software 8 = Other

INTERVIEWER: Please include ALL LAND REGARDLESS OF LOCATION OR USE.

Question: What is the total amount of land owned, rented, or used by this establishment?	Variable	Answer
Total number of acres OWNED	c1_0c1	Number
Total number of acres RENTED or LEASED FROM OTHERS	c1_0c2	Number
Number of acres RENTED or LEASED TO OTHERS	c1_0c3	Number
Total acres OPERATES (CAPI: CALCULATE THE NUMBER)	c1_0c4 = (c1_0c1+ c1_0c2- c1_0c3)	Number

Question	Variable	Answer
Does this establishment process the production in house to sell them for final consumers?	c2_0d	1 = Yes 2 = No

C2.1. Breeding and genetics

Question	Variable	Answer
Does this farm conduct breeding and genetic procedures in house? [SKIP: If c2_1a1=1 go to question c2_1b1]	c2_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c2_1a2=1 go to question c2_1b1]	c2_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c2_2a1]	c2_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for breeding or genetic procedures?	Variable	Answer	
Breed substitution	c2_1b1	1 = Yes 2 = No	-9 = Don't know
Inbreeding or Crossbreeding	c2_1b2	1 = Yes 2 = No	-9 = Don't know
Artificial insemination (AI)	c2_1b3	1 = Yes 2 = No	-9 = Don't know
Selective breeding based on molecular genetics (marker-assisted selection, PCR, DNA sequencing, transgenesis, cloning, genomics)	c2_1b4	1 = Yes 2 = No	-9 = Don't know
Other	c2_1b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the breeding or genetic method used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c2_1b variables]	Variable c2_1c	Answer 1 = Breed substitution 2 = Inbreeding or Crossbreeding 3 = Artificial insemination (AI) 4 = Selective breeding based on molecular genetics (marker-assisted selection, PCR, DNA sequencing, transgenesis, cloning, genomics) 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using artificial insemination or selective breeding based on molecular genetics for breeding and genetics? [CONDITION: ask this question only if c2_1b3=1 or c2_1b4=1]	c2_1d	(Number of years)

C2.2. Nutrition and Feeding

Question	Variable	Answer
Does this farm implement animal nutrition and feeding procedure in house? [SKIP: If c2_2a1=1 go to question c2_2b1]	c2_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c2_2a2=1 go to question c2_2b1]	c2_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c2_3a1]	c2_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for animal nutrition?	Variable	Answer	
Household waste (food leftovers, kitchen residues etc.) or fibrous crop residues	c2_2b1	1 = Yes 2 = No	-9 = Don't know
Natural grasslands and pastures	c2_2b2	1 = Yes 2 = No	-9 = Don't know
Integrated crop-livestock systems: crop-pasture (e.g. soybean-pasture, tree-crop-pasture; tree-pasture; tree-crop)	c2_2b3	1 = Yes 2 = No	-9 = Don't know
Production of forage crops	c2_2b4	1 = Yes 2 = No	-9 = Don't know
Production of supplementary feed to grazing pastures: hay, silage, grains feed	c2_2b5	1 = Yes 2 = No	-9 = Don't know

Manufacturing or mixing of feed (use of feed mills on premises)	c2_2b6	1 = Yes 2 = No	-9 = Don't know
Production of genetically-modified feed	c2_2b7	1 = Yes 2 = No	-9 = Don't know
Other	c2_2b8	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the nutrition method used more often in this farm?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c2_2b variables]</p>	<p>Variable</p> <p>c2_2c</p>	<p>Answer</p> <p>1 = Household waste (food leftovers, kitchen residues etc.) or fibrous crop residues</p> <p>2 = Natural grasslands and pastures</p> <p>3 = Integrated crop-livestock systems: crop-pasture</p> <p>4 = Production of forage crops</p> <p>5 = Production of supplementary feed to grazing pastures: hay, silage, grains feed</p> <p>6 = Manufacturing or mixing of feed (use of feed mills on premises)</p> <p>7 = Production of genetically-modified feed</p> <p>8 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years has this establishment been using supplementary feed to grazing pastures, manufacturing or mixing of feed, or genetically-modified feed for nutrition?</p> <p>[CONDITION: ask this question only if c2_2b5=1, c2_2b6=1, or c2_2b7=1]</p>	c2_2d	(Number of years)

C2.3. Animal healthcare

Question	Variable	Answer
<p>Does this establishment implement animal healthcare procedure in house?</p> <p>[SKIP: If c2_3a1=1 go to question c2_3b1]</p>	c2_3a1	1 = Yes 2 = No
<p>Is this task outsourced to another unit of the same firm?</p> <p>[CONDITION: Only for multi-establishment firms (s4=1)]</p> <p>[SKIP: If c2_3a2=1 go to question c2_3b1]</p>	c2_3a2	1 = Yes 2 = No -9 = Don't know
<p>Is this task outsourced to another firm?</p> <p>[SKIP: Go to question c2_4a1]</p>	c2_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for animal healthcare?	Variable	Answer
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Rapid diagnostic tests (e.g pathology, bacteriology, parasitology, toxicology, serology, histology, molecular diagnostics, avian flu etc.)	c2_3b1	1 = Yes 2 = No	-9 = Don't know
Pest sprays	c2_3b2	1 = Yes 2 = No	-9 = Don't know
Vaccines (live-attenuated, inactivated or subunit)	c2_3b3	1 = Yes 2 = No	-9 = Don't know
DNA or RNA-based vaccine	c2_3b4	1 = Yes 2 = No	-9 = Don't know
Disease medication (antibiotics, coccidiostats, deworming medicine etc.)	c2_3b5	1 = Yes 2 = No	-9 = Don't know
Other	c2_3b6	1 = Yes 2 = No	-9 = Don't know

Question: What the animal healthcare method used more often in this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c2_3b variables]	Variable c2_3c	Answer 1 = Rapid diagnostic tests (e.g. pathology, bacteriology, parasitology, toxicology, serology, histology, molecular diagnostics, avian flu etc.) 2 = Pest sprays 3 = Vaccines (live-attenuated, inactivated or subunit) 4= DNA or RNA-based vaccine 5 = Disease medication (antibiotics, coccidiostats, deworming medicine etc.) 6= Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using vaccines for animal healthcare? [CONDITION: ask this question only if c2_3b3=1 or c2_3b4=1]	c2_3d	(Number of years)

C2.4. Herd management and monitoring

Question	Variable	Answer
Does this establishment conduct herd management and monitoring in house? [SKIP: If c2_4a1=1 go to question c2_4b1]	c2_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c2_4a2=1 go to question c2_4b1]	c2_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c2_5a1]	c2_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for herd management and monitoring?	Variable	Answer	
Human monitoring	c2_4b1	1 = Yes 2 = No	-9 = Don't know
Animal-aided monitoring	c2_4b2	1 = Yes 2 = No	-9 = Don't know
Feedlots or grazing system	c2_4b3	1 = Yes 2 = No	-9 = Don't know
Automated cameras and video	c2_4b4	1 = Yes 2 = No	-9 = Don't know
Unmanned aerial vehicles (drones) and photographs / video	c2_4b5	1 = Yes 2 = No	-9 = Don't know
Analog tracking devices attached to animals (tail paints, scratch cards, tags)	c2_4b6	1 = Yes 2 = No	-9 = Don't know
Digital tracking device attached to animal (wearable activity monitors, RFID heat-detection tags, calving sensors, ingestible microchips)	c2_4b7	1 = Yes 2 = No	-9 = Don't know
Other	c2_4b8	1 = Yes 2 = No	-9 = Don't know

Question: What is the herd management and monitoring method used more often in this farm? [CONDITION: Ask only if the answer is YES for more than one option among c2_4b variables]	Variable c2_4c	Answer
		1 = Human monitoring 2 = Animal-aided monitoring 3 = Feedlots or grazing system 4 = Automated cameras and video 5 = Unmanned aerial vehicles (drones) and photographs / video 6 = Analog tracking devices attached to animals (tail paints, scratch cards, tags) 7 = Digital tracking device attached to animal (wearable activity monitors, RFID heat-detection tags, calving sensors, ingestible microchips) 8 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using unmanned aerial vehicles or analog tracking devices or digital tracking devices attached to animals for herd management and monitoring? [CONDITION: ask this question only if c2_4b5=1 or c2_4b6=1 or c2_4b7=1]	c2_4d	(Number of years)

C2.5. Transport of livestock

Question	Variable	Answer
Is the transport of livestock directly done by this establishment's workers? [SKIP: If c2_5a1=1 go to question c2_5b1]	c2_5a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same enterprise? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c2_5a2=1 go to question c2_5b1]	c2_5a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another enterprise? [SKIP: Go to question D1]	c2_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for transport of livestock?	Variable	Answer	
Manual transport (carried on-foot)	c2_5b1	1 = Yes 2 = No	-9 = Don't know
Non-motorized vehicles (carts, bicycles)	c2_5b2	1 = Yes 2 = No	-9 = Don't know
Motorized vehicles (motorcycles, three-wheelers, cars, buses, trucks etc.)	c2_5b3	1 = Yes 2 = No	-9 = Don't know
Specialized / climate-controlled vehicles (ventilation, heat control, nonslip floors, partitioned areas, cold-chain)	c2_5b4	1 = Yes 2 = No	-9 = Don't know
Other	c2_5b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the transport method used more often in this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c2_5b variables]	Variable	Answer
	c2_5c	1 = Manual transport (carried on-foot) 2 = Non-motorized vehicles (carts, bicycles) 3 = Motorized vehicles (motorcycles, three-wheelers, cars, buses, trucks etc.) 4 = Specialized / climate-controlled vehicles (ventilation, heat control, nonslip floors, partitioned areas, cold-chain) 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using specialized climate-controlled vehicles for transport? [CONDITION: ask this question only if c2_5b4=1]	c2_5d	(Number of years)

3. Food Processing (Manufacturing)

C3.0 Screening questions

Question	Variable	Answer
Is this establishment regulated and inspected by a government agency related to food processing?	c3_0a1	1 = Yes 0 = No -9 = Don't know -7 = Not applicable
What is the main agency that regulates this establishment? [CONDITION: ask only if c3_0a1=1]	c3_0a2	Name of the agency

Question	Variable	Answer
Are the finished products made by this establishment shelf stable?	c3_0b1	1 = Yes 0 = No -9 = Don't know -7 = Not applicable
Are the finished products made by this establishment fresh/perishable?	c3_0b2	1 = Yes 0 = No -9 = Don't know -7 = Not applicable

C3.1 Input Testing

Question	Variable	Answer
Does this establishment conduct input testing in house? [SKIP: If c3_1a1=1 go to question c3_1b1]	c3_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c3_1a2=1 go to question c3_1b1]	c3_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c3_2a1]	c3_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following input testing mechanisms?	Variable	Answer	
Sensory systems (e.g. visual, smell, tactile, color)	c3_1b1	1 = Yes 2 = No	-9 = Don't know
Review of supplier testing on Certificate of Analysis	c3_1b2	1 = Yes 2 = No	-9 = Don't know
Non-computer-controlled testing kits	c3_1b3	1 = Yes 2 = No	-9 = Don't know

Computer testing such as chromatography or spectroscopy	c3_1b4	1 = Yes 2 = No	-9 = Don't know
Other	c3_1b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the input testing mechanism used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c3_1b variables]	Variable c3_1c	Answer 1 = Sensory (visual, smell, color, etc.) 2 = Review of supplier testing on Certificate of Analysis 3 = Non-computer-controlled testing kits 4 = Computer testing such as chromatography or spectroscopy 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using computer testing for input testing? [CONDITION: ask this question only if c3_1b4=1]	c3_1d	(Number of years)

C3.2 Mixing/blending/cooking

Question	Variable	Answer
Does this establishment process food preparation such as mixing, blending, or cooking in house? [SKIP: If c3_2a1=1 go to question c3_2b1]	c3_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c3_2a2=1 go to question c3_2b1]	c3_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c3_3a1]	c3_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following food preparation methods such as mixing, blending?	Variable	Answer	
Manual process	c3_2b1	1 = Yes 2 = No	-9 = Don't know
Mechanical equipment requiring human force to operate	c3_2b2	1 = Yes 2 = No	-9 = Don't know
Power equipment requiring routine human interaction	c3_2b3	1 = Yes 2 = No	-9 = Don't know
Power equipment controlled by computers or robotics, with minimal human interaction	c3_2b4	1 = Yes 2 = No	-9 = Don't know
Other	c3_2b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the mixing, blending or cooking method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c3_2b variables]	Variable c3_2c	Answer 1 = Manual process 2 = Mechanical equipment requiring human force to operate 3 = Power equipment requiring routine human interaction 4 = Power equipment controlled by computers or robotics, with minimal human interaction 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using power equipment for mixing, blending or cooking? [CONDITION: ask this question only if c3_2b3=1 or c3_2b4=1]	c3_2d	(Number of years)

C3.3 Anti-bacterial processes

Question	Variable	Answer
Does this establishment handle anti-bacterial processes in house? [SKIP: If c3_3a1=1 go to question c3_3b1]	c3_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c3_3a2=1 go to question c3_3b1]	c3_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c3_4a1]	c3_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following anti-bacterial processes?	Variable	Answer	
Minimal-processing preservation methods	c3_3b1	1 = Yes 2 = No	-9 = Don't know
Anti-bacterial wash or soaking	c3_3b2	1 = Yes 2 = No	-9 = Don't know
Thermal Processing Technologies	c3_3b3	1 = Yes 2 = No	-9 = Don't know
Other advanced methods such as High-pressure processing (HPP) and Pulsed electric field (PEF)	c3_3b4	1 = Yes 2 = No	-9 = Don't know
Other	c3_3b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the anti-bacterial process used more often in this facility?	Variable c3_3c	Answer 1 = Minimal-processing preservation methods 2 = Anti-bacterial wash or soaking 3 = Thermal Processing Technologies
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[CONDITION: Ask only if the answer is YES for more than one option among c3_3b variables]		4 = Other advanced methods such as High-pressure processing (HPP) and Pulsed electric field (PEF) 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using thermal or more advanced anti-bacterial processes for anti-bacterial processes? [CONDITION: ask this question only if c3_3b3=1 or c3_3b4=1]	c3_3d	(Number of years)

C3.4 Packaging

Question	Variable	Answer
Does this establishment proceed with packaging in house? [SKIP: If c3_4a1=1 go to question c3_4b1]	c3_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c3_4a2=1 go to question c3_4b1]	c3_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c3_5a1]	c3_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following packaging methods?	Variable	Answer	
Manual packing in bags, bottles or boxes	c3_4b1	1 = Yes 2 = No	-9 = Don't know
Human operated mechanical equipment for packaging in bags, bottles or boxes	c3_4b2	1 = Yes 2 = No	-9 = Don't know
Power equipment requiring routine human interaction	c3_4b3	1 = Yes 2 = No	-9 = Don't know
Power equipment controlled by computers or robotics, with minimal human interaction	c3_4b4	1 = Yes 2 = No	-9 = Don't know
Other	c3_4b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the packaging procedure used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c3_4b variables]	Variable	Answer
	c3_4c	1 = Manual packing in bags, bottles or boxes 2 = Human operated mechanical equipment for packaging in bags, bottles or boxes 3 = Power equipment requiring routine human interaction 4 = Power equipment controlled by computers or robotics, with minimal human interaction 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using power equipment for packaging? [CONDITION: ask this question only if c3_4b3=1 or c3_4b4=1]	c3_4d	(Number of years)

C3.5 Food storage

Question	Variable	Answer
Does this establishment store the food in house? [SKIP: If c3_5a1=1 go to question c3_5b1]	c3_5a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c3_5a2=1 go to question c3_5b1]	c3_5a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	c3_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following food storage conditions?	Variable	Answer	
Minimal protection with some exposure to outside elements	c3_5b1	1 = Yes 2 = No	-9 = Don't know
Ambient conditions in closed building	c3_5b2	1 = Yes 2 = No	-9 = Don't know
Some climate control in secured building (e.g. partial or seasonal control)	c3_5b3	1 = Yes 2 = No	-9 = Don't know
Fully automated climate and security-controlled building	c3_5b4	1 = Yes 2 = No	-9 = Don't know
Other	c3_5b5	1 = Yes 2 = No	-9 = Don't know

Question: What are the food storage conditions more often observed in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c3_5b variables]	Variable	Answer
	c3_5c	1 = Minimal protection with some exposure to outside elements 2 = Ambient conditions in closed building 3 = Some climate control in secured building (e.g. partial or seasonal control) 4 = Fully automated climate and security-controlled building 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using climate control in secured building for food storage? [CONDITION: ask this question only if c3_5b3=1 or c3_5b4=1]	c3_5d	(Number of years)

4. Wearing apparel (manufacturing)

Question: What material does this establishment use to start production?	Variable	Answer	
Printed fabric (e.g. this establishment assembled the provided fabric)	c4_0a1	1 = Yes 2 = No	-9 = Don't know
White fabric (e.g. this establishment die the fabric)	c4_0a2	1 = Yes 2 = No	-9 = Don't know
Fabric threads (e.g. this establishment weave the fabric)	c4_0a3	1 = Yes 2 = No	-9 = Don't know
Other	c4_0a4	1 = Yes 2 = No	-9 = Don't know

Question: What garments are produced by this establishment?	Variable	Answer	
Basic: TShirt, shorts, cotton, poly, denim	c4_0b1	1 = Yes 2 = No	-9 = Don't know
Fashion: Complex cuts and stich, material mix	c4_0b2	1 = Yes 2 = No	-9 = Don't know
Sports: alternative finishes such as waterproof, reflective	c4_0b3	1 = Yes 2 = No	-9 = Don't know
Protective apparel: including padding, TPR	c4_0b4	1 = Yes 2 = No	-9 = Don't know
Other	c4_0b5	1 = Yes 2 = No	-9 = Don't know

Question: What finishes are available in this establishment?	Variable	Answer	
Silk screen	c4_0c1	1 = Yes 2 = No	-9 = Don't know
Embroidery	c4_0c2	1 = Yes 2 = No	-9 = Don't know
Washing	c4_0c3	1 = Yes 2 = No	-9 = Don't know
Waterproofing	c4_0c4	1 = Yes 2 = No	-9 = Don't know
Other	c4_0c5	1 = Yes 2 = No	-9 = Don't know

C4.1 Design

Do clients provide files for design to this establishment? [SKIP: If c4_1a1=2 go to question c4_1a3]	c4_1a1	1 = Yes 2 = No
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Question: What is the most common file provided by clients for design?	Variable c4_1a2	Answer 1 = Graded file of all sizes ready to cut 2 = A prototype cutting file for grading 3 = Hand drawing of the design 4 = Computer drawing of the design 5 = 3D file of the design 6 = Other -9 = Don't know
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Question	Variable	Answer
Does this establishment do design drawing in house? [SKIP: If c4_1a3=1 go to question c4_1b1]	c4_1a3	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_1a4=1 go to question c4_1b1]	c4_1a4	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c4_2a1]	c4_1a5	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following design drawing processes?	Variable	Answer	
Manual design and hand drawing	c4_1b1	1 = Yes 2 = No	-9 = Don't know
Digital or semi-digital design using specialized 2D drawing software	c4_1b2	1 = Yes 2 = No	-9 = Don't know
Computer Aided Design (CAD), 3D design, virtual prototyping	c4_1b3	1 = Yes 2 = No	-9 = Don't know
Other	c4_1b4	1 = Yes 2 = No	-9 = Don't know

Question: What is the design drawing process used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c4_1b variables]	Variable c4_1c	Answer 1 = Manual design and hand drawing 2 = Digital or semi-digital design using specialized 2D drawing software 3 = Computer Aided Design (CAD), 3D design, virtual prototyping 4 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using specialized software, 3D design, or virtual prototyping? [CONDITION: ask this question only if c4_1b2=1 or c4_1b3=1]	c4_1d	(Number of years)

C4.2 Cutting

Question	Variable	Answer
Does this establishment handle cutting process in house? [SKIP: If c4_2a1=1 go to question c4_2b1]	c4_2a1	1 = Yes 2 = No
Is this task outsourced another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_2a2=1 go to question c4_2b1]	c4_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c4_3a1]	c4_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following cutting methods?	Variable	Answer	
Manual cutting	c4_2b1	1 = Yes 2 = No	-9 = Don't know
Cutting machine manually operated	c4_2b2	1 = Yes 2 = No	-9 = Don't know
Semi-Automatic cutting machine (straight knife, round knife, die cutting machine)	c4_2b3	1 = Yes 2 = No	-9 = Don't know
Automatic or Computerized cutting machine (no Laser: water jet, knife, other)	c4_2b4	1 = Yes 2 = No	-9 = Don't know
Automatic/Computerized cutting machine (Laser)	c4_2b5	1 = Yes 2 = No	-9 = Don't know
Other	c4_2b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the cutting method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c4_2b variables]	Variable	Answer
	c4_2c	1 = Manual cutting 2 = Cutting machine manually operated 3 = Semi-Automatic cutting machine (straight knife, round knife, die cutting machine) 4 = Automatic or Computerized cutting machine (no Laser: water jet, knife, other) 5 = Automatic/Computerized cutting machine (Laser) 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using automatic cutting machines and lasers? [CONDITION: ask this question only if c4_2b4=1 or c4_2b5=1]	c4_2d	(Number of years)

C4.3 Sewing and Joining Parts

Question	Variable	Answer
Does this establishment handle sew process in house? [SKIP: If c4_3a1=1 go to question c4_3b1]	c4_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_3a2=1 go to question c4_3b1]	c4_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c4_4a1]	c4_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following sewing methods?	Variable	Answer	
Manually sewing	c4_3b1	1 = Yes 2 = No	-9 = Don't know
Machine sewing manually operated	c4_3b2	1 = Yes 2 = No	-9 = Don't know
Semi-automated sewing machines	c4_3b3	1 = Yes 2 = No	-9 = Don't know
Automated sewing machines	c4_3b4	1 = Yes 2 = No	-9 = Don't know
3D Knitting	c4_3b5	1 = Yes 2 = No	-9 = Don't know
Other	c4_3b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the sewing method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c4_3b variables]	Variable	Answer
	c4_3c	1 = Manually sewing 2 = Machine sewing manually operated 3 = Semi-automated sewing machines 4 = Automated sewing machines 5 = 3D Knitting machines 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using semi-automated sewing machines or automated sewing machines or 3D knitting? [CONDITION: ask this question only if c4_3b3=1 or c4_3b4=1 or c4_3b5=1]	c4_3d	(Number of years)

C4.4 Finishing – Ironing

Question	Variable	Answer
Does this establishment handle finishing and ironing process in house? [SKIP: If c4_4a1=1 go to question c4_4b1]	c4_4a1	1 = Yes 2 = No
Is this task outsourced another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c4_4a2=1 go to question c4_4b1]	c4_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	c4_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following finishing and ironing methods?	Variable	Answer	
Basic manual ironing	c4_4b1	1 = Yes 2 = No	-9 = Don't know
Electric high-pressure steam iron	c4_4b2	1 = Yes 2 = No	-9 = Don't know
Tunnel finisher	c4_4b3	1 = Yes 2 = No	-9 = Don't know
Form finishing machine	c4_4b4	1 = Yes 2 = No	-9 = Don't know
High tech pressing machine	c4_4b5	1 = Yes 2 = No	-9 = Don't know
Other	c4_4b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the finishing and ironing method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c4_4b variables]	Variable	Answer
	c4_4c	1 = Basic manual ironing 2 = Electric high-pressure steam iron 3 = Tunnel finisher 4 = Form finishing machine 5 = High tech pressing machine 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using form finishing machines or high-tech pressing machines? [CONDITION: ask this question only if c4_4b3=1 or c4_4b4=1 or c4_4b5=1]	c4_4d	(Number of years)

5. Automotive (manufacturing)

C5.1 Vehicle assembly, advanced processing and fabrication technology

Question	Variable	Answer
Does this establishment assemble vehicles? [SKIP: If c5_1a1 =1 go to question c5_1b1]	c5_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c5_1a2 =1 go to question c5_1b1]	c5_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c5_2a1]	c5_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following assembly or fabrication processes?	Variable	Answer	
Machines fully controlled by operators	c5_1b1	1 = Yes 2 = No	-9 = Don't know
Flexible Manufacturing Cells (FMC) or Flexible Manufacturing Systems (FMS)	c5_1b2	1 = Yes 2 = No	-9 = Don't know
Lasers used in materials processing (including surface modification)	c5_1b3	1 = Yes 2 = No	-9 = Don't know
Computer numerically controlled (CNC) machinery	c5_1b4	1 = Yes 2 = No	-9 = Don't know
Robots	c5_1b5	1 = Yes 2 = No	-9 = Don't know
Additive manufacturing including including rapid prototyping and 3D printers	c5_1b6	1 = Yes 2 = No	-9 = Don't know
Other	c5_1b7	1 = Yes 2 = No	-9 = Don't know

Question: What is the assembly or fabrication process used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among c5_1b variables]	Variable c5_1c	Answer
		1 = Machines fully controlled by operators 2 = Flexible Manufacturing Cells (FMC) or Flexible Manufacturing Systems (FMS) 3 = Lasers used in materials processing (including surface modification) 4 = Computer numerically controlled (CNC) machinery 5 = Robots 6 = Additive manufacturing including including rapid prototyping and 3D printers 7 = Others -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using Computer numerically controlled (CNC) machinery, robots, or additive manufacturing? [CONDITION: ask this question only if c5_1b4=1 or c5_1b5=1 or c5_1b6=1]	c5_1d	(Number of years)

C5.2 Body pressing and welding

Question	Variable	Answer
Does this establishment handle body press and welding in house? [SKIP: If c5_2a1=1 go to question c5_2b1]	c5_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c5_2a2=1 go to question c5_2b1]	c5_2a2	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c5_3a1]	c5_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following body pressing and welding methods?	Variable	Answer	
Pressing of skin panels using operators	c5_2b1	1 = Yes 2 = No	-9 = Don't know
Pressing of structural components using operators	c5_2b2	1 = Yes 2 = No	-9 = Don't know
Welding of main body using operators	c5_2b3	1 = Yes 2 = No	-9 = Don't know
Pressing of skin panels automated using robotics	c5_2b4	1 = Yes 2 = No	-9 = Don't know
Pressing of structural components automated using robotics	c5_2b5	1 = Yes 2 = No	-9 = Don't know
Welding of main body automated using robotics	c5_2b6	1 = Yes 2 = No	-9 = Don't know
Other	c5_2b7	1 = Yes 2 = No	-9 = Don't know

Question: What is the pressing and welding method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c5_2b variables]	Variable c5_2c	Answer
		1 = Pressing of skin panels using operators 2 = Pressing of structural components using operators 3 = Welding of main body using operators 4 = Pressing of skin panels automated using robotics 5 = Pressing of structural components automated using robotics

		6 = Welding of main body automated using robotics 7 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using pressing of structural components automated using robotics, welding of main body using operators or welding of main body automated using robotics? [CONDITION: ask this question only if c5_2b4=1 or c5_2b5=1 or c5_2b6=1]	c5_2d	(Number of years)

C5.3 Painting

Question	Variable	Answer
Does this establishment handle painting process in house? [SKIP: If c5_3a1=1 go to question c5_3b1]	c5_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c5_3a2=1 go to question c5_3b1]	c5_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c5_4a1]	c5_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following painting methods?	Variable	Answer	
Water-based painting using operators	c5_3b1	1 = Yes 2 = No	-9 = Don't know
Solvent-based painting using operators	c5_3b2	1 = Yes 2 = No	-9 = Don't know
Water-based painting automated using robotics	c5_3b3	1 = Yes 2 = No	-9 = Don't know
Solvent-based painting automated using robotics	c5_3b4	1 = Yes 2 = No	-9 = Don't know
Other	c5_3b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the painting method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c5_3b variables]	Variable	Answer
	c5_3c	1 = Water-based painting using operators 2 = Solvent-based painting using operators 3 = Water-based painting automated using robotics 4 = Solvent-based painting automated using robotics 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using water-based painting automated using robotics or solvent-based painting automated using robotics? [CONDITION: ask this question only if c5_3b3=1 or c5_3b4=1]	c5_3d	(Number of years)

C5.4 Plastic injection molding

Question	Variable	Answer
Does this establishment handle plastic injection molding in house? [SKIP: If c5_4a1=1 go to question c5_4b1]	c5_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c5_4a2=1 go to question c5_4b1]	c5_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c5_5a1]	c5_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following plastic injection molding methods?	Variable	Answer	
Molding of non-visible interior plastic components using operators	c5_4b1	1 = Yes 2 = No	-9 = Don't know
Molding of plastic exterior body parts using operators	c5_4b2	1 = Yes 2 = No	-9 = Don't know
Molding of non-visible interior plastic components automated using robotics	c5_4b3	1 = Yes 2 = No	-9 = Don't know
Molding of plastic exterior body parts automated using robotics	c5_4b4	1 = Yes 2 = No	-9 = Don't know
Other	c5_4b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the plastic injection molding method used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c5_4b variables]	Variable	Answer
	c5_4c	1 = Molding of non-visible interior plastic components using operators 2 = Molding of plastic exterior body parts using operators 3 = Molding of non-visible interior plastic components automated using robotics 4 = Molding of plastic exterior body parts automated using robotics 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using molding of non-visible interior plastic components using robotics or molding of plastic exterior body parts automated using robotic? [CONDITION: ask this question only if c5_4b3=1 or c5_4b4=1]	c5_4d	(Number of years)

C5.5. Productive assets management

Question	Variable	Answer
Does this establishment implement productive assets management in house? [SKIP: If c5_5a1=1 go to question c5_5b1]	c5_5a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c5_5a2=1 go to question c5_5b1]	c5_5a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	c5_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following productive asset management systems?	Variable	Answer	
Breakdown maintenance system	c5_5b1	1 = Yes 2 = No	-9 = Don't know
Preventative or predictive maintenance system	c5_5b2	1 = Yes 2 = No	-9 = Don't know
Model Based Condition Monitoring	c5_5b3	1 = Yes 2 = No	-9 = Don't know
Other	c5_5b4	1 = Yes 2 = No	-9 = Don't know

Question: What is the productive asset management system used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c5_5b variables]	Variable	Answer
	c5_5c	1 = Breakdown maintenance system 2 = Preventative or predictive maintenance system 3 = Model Based Condition Monitoring 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using preventive maintenance system or model-based condition monitoring? [CONDITION: ask this question only if c5_5b2=1 or c5_5b3=1]	c5_5d	(Number of years)

6. Pharmaceutical Processing

Question: What sort of drugs this establishment produce?	Variable	Answer	
Tablets and capsules	c6_0a1	1 = Yes 2 = No	-9 = Don't know
Creams and ointments	c6_0a2	1 = Yes 2 = No	-9 = Don't know
Eye and ear solutions	c6_0a3	1 = Yes 2 = No	-9 = Don't know
Syrups and dry powders	c6_0a4	1 = Yes 2 = No	-9 = Don't know

Question: What is the main product produced by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_0a variables]	Variable	Answer
	c6_0b1	1 = Tablets and capsules 2 = Creams and ointments 3 = Eye and ear solutions 4 = Syrups and dry powders

	Variable	Answer	
Does this establishment conduct research associated with new-drug discovery? [SKIP: If c6_0c1=2 go to section c6_1a1]	c6_0c1	1 = Yes 2 = No	-9 = Don't know
Are the lead researchers of these projects mostly direct employees of this establishment?	c6_0c2	1 = Yes 2 = No.	-9 = Don't know

C6.1 Facilities

Question	Variable	Answer
Does this establishment use its facilities to mix raw material and compounding in house? [SKIP: If c6_1a1=1 go to question c6_1b1]	c6_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c6_1a2=1 go to question c6_1b1]	c6_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c6_2b1]	c6_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following air filtration systems?	Variable	Answer	
Unfiltered air in filling space	c6_1b1	1 = Yes 2 = No	-9 = Don't know
Basic air filtration	c6_1b2	1 = Yes 2 = No	-9 = Don't know
HEPA air filtration	c6_1b3	1 = Yes 2 = No	-9 = Don't know
Ultra HEPA air, pressurization control	c6_1b4	1 = Yes 2 = No	-9 = Don't know
Other	c6_1b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the air filtration system used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among c6_1b variables]	Variable	Answer
	c6_1c	1 = Unfiltered air in filling space 2 = Basic air filtration 3 = HEPA air filtration 4 = Ultra HEPA air, pressurization control 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years have this establishment been using HEPA air filtration or ultra HEPA air, pressurization control for raw material weighing and dispensing in these facilities? [CONDITION: ask this question only if c6_1b3=1 or c6_1b4=1]	c6_1d	(Number of years)

C6.2 Raw Material Weighing & Dispensing

Question: Does this establishment use any of the following weighting scale systems?	Variable	Answer	
Beam Scales	c6_2b1	1 = Yes 2 = No	-9 = Don't know
Analog Scales	c6_2b2	1 = Yes 2 = No	-9 = Don't know
Electronic Scales	c6_2b3	1 = Yes 2 = No	-9 = Don't know
Automated Weighing Systems	c6_2b4	1 = Yes 2 = No	-9 = Don't know
Other	c6_2b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the weighting scale system used more often by this establishment?	Variable	Answer
	c6_2c	1 = Beam Scales 2 = Analog Scales

[CONDITION: Ask only if the answer is YES for more than one option among c6_2b variables]		3 = Electronic Scales 4 = Automated Weighing Systems 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been automated weighing systems for raw material and weighing? [CONDITION: ask this question only if c6_2b4=1]	c6_2d	(Number of years)

C6.3 Mixing and Compounding

Question: Does this establishment use any of the following mixing and compounding systems?	Variable	Answer	
Manual Mixing	c6_3b1	1 = Yes 2 = No	-9 = Don't know
Planetary Mixers OR homogenizers	c6_3b2	1 = Yes 2 = No	-9 = Don't know
High Speed, High Shear Granulators	c6_3b3	1 = Yes 2 = No	-9 = Don't know
Fluid Bed Processors (not with syrups)	c6_3b4	1 = Yes 2 = No	-9 = Don't know
Fully Automated Compounding	c6_3b5	1 = Yes 2 = No	-9 = Don't know
Other	c6_3b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the mixing and compounding system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_3b variables]	Variable c6_3c	Answer 1 = Manual Mixing 2 = Planetary Mixers OR homogenizers 3 = High Speed, High Shear Granulators 4 = Fluid Bed Processors (not with syrups) 5 = Fully Automated Compounding 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using high speed, high shear granulators, fluid bed processors or automated compounding? [CONDITION: ask this question only if c6_3b3=1 or c6_3b4=1 or c6_3b5=1]	c6_3d	(Number of years)

C6.4 Compression and Encapsulation

[SKIP: If **c6_0b1=3** OR **c6_0b1=4** go to question **c6_5a1**]

Question	Variable	Answer
Does this establishment employ compression or encapsulation methods for production in house? [SKIP: If c6_4a1=1 go to question c6_4b1]	c6_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c6_4a2=1 go to question c6_4b1]	c6_4a2	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c6_5a1]	c6_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following compression or encapsulation methods?	Variable	Answer	
Manual Compression, Encapsulation with dosing dies	c6_4b1	1 = Yes 2 = No	-9 = Don't know
Motorized Compression, Encapsulation	c6_4b2	1 = Yes 2 = No	-9 = Don't know
Automated Compression, Encapsulation	c6_4b3	1 = Yes 2 = No	-9 = Don't know
Integrated Compression, Encapsulation	c6_4b4	1 = Yes 2 = No	-9 = Don't know
Other	c6_4b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the compression or encapsulation method used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_4b variables]	Variable	Answer
	c6_4c	1 = Manual Compression, Encapsulation with dosing dies 2 = Motorized Compression, Encapsulation 3 = Automated Compression, Encapsulation 4 = Integrated Compression, Encapsulation 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using automate compression or integrated compression for compression? [CONDITION: ask this question only if c6_4b3=1 or c6_4b4=1]	c6_4d	(Number of years)

C6.5 Quality Control

Question	Variable	Answer
Does this establishment have an in-house quality control system? [SKIP: If c6_5a1=1 go to question c6_5b1]	c6_5a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c6_5a2=1 go to question c6_5b1]	c6_5a2	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c6_6b1]	c6_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following quality control systems?	Variable	Answer	
Manual, titrimetric/ chromatographic analyses	c6_5b1	1 = Yes 2 = No	-9 = Don't know
Electronic chromatography	c6_5b2	1 = Yes 2 = No	-9 = Don't know
Electronic chromatography with data acquisition	c6_5b3	1 = Yes 2 = No	-9 = Don't know
Other	c6_5b4	1 = Yes 2 = No	-9 = Don't know

Question: What is the quality control system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_5b variables]	Variable	Answer
	c6_5c	1 = Manual, titrimetric/ chromatographic analyses 2 = Electronic chromatography 3 = Electronic chromatography with data acquisition 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using electronic chromatography or electronic chromatography with data acquisition for quality control? [CONDITION: ask this question only if c6_5b2=1 or c6_5b3=1]	c6_5d	(Number of years)

C1.6 Packaging

Question	Variable	Answer
Does this establishment package products in house? [SKIP: If c6_6a1=1 go to question c6_6b1]	c6_6a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c6_6a2=1 go to question c6_6b1]	c6_6a2	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	c6_6a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following packaging methods?	Variable	Answer	
Manual filling of pills in bottles OR placement of syrups, powders in bottles or pouches	c6_6b1	1 = Yes 2 = No	-9 = Don't know
For pills: Slat Counters, Cottoners, Cappers, Labelers OR machine filling of syrups, powders in bottles or pouches	c6_6b2	1 = Yes 2 = No	-9 = Don't know
Automated, Integrated Packaging Lines	c6_6b3	1 = Yes 2 = No	-9 = Don't know
Other	c6_6b4	1 = Yes 2 = No	-9 = Don't know

Question: What is the packaging method used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c6_6b variables]	Variable	Answer
	c6_6c	1 = Manual filling of pills in bottles OR placement of syrups, powders in bottles or pouches 2 = For pills: Slat Counters, Cottoners, Cappers, Labelers OR machine filling of syrups, powders in bottles or pouches 3 = Automated, Integrated Packaging Lines 4 = Other -9 = Don't know

Question	Variable	Answer
For how many years this establishment has been using Slat counters, Cottoners, Cappers, Labelers OR machine filling automated, integrated packaging lines for packaging? [CONDITION: ask this question only if c6_6b2=1 or c6_6b3=1]	c6_6d	(Number of years)

7. Retail (services)

C 7.1 Customer service

Question	Variable	Answer
Does this establishment provide customer supporting services in house (e.g. technical support, complaints, return)? [SKIP: If c7_1a1=1 go to question c7_1b1]	c7_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c7_1a2=1 go to question c7_1b1]	c7_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c7_2a1]	c7_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment provide any of the following customer service channels?	Variable	Answer	
At the Store	c7_1b1	1 = Yes 2 = No	-9 = Don't know
Phone call or call Help Desk	c7_1b2	1 = Yes 2 = No	-9 = Don't know
Social Media (e.g. Facebook, WhatsApp, or similar)	c7_1b3	1 = Yes 2 = No	-9 = Don't know
Online requests (using own website or specialized digital platform or App)	c7_1b4	1 = Yes 2 = No	-9 = Don't know
Chatbots (e.g. a computer program which conducts a conversation via auditory or textual methods without human interaction by the company)	c7_1b5	1 = Yes 2 = No	-9 = Don't know
Other	c7_1b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the customer service procedure used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c7_1b variables]	Variable	Answer
	c7_1c	1 = At the Store 2 = Phone call or call Help Desk 3 = Social Media (e.g. Facebook, WhatsApp, or similar) 4 = Online requests (using own website or specialized digital platform or App) 5 = Chatbots (e.g. a computer program which conducts a conversation via auditory or textual methods without human interaction by the company) 6 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using online technologies for customer services? [CONDITION: ask this question only if c7_1b3=1 or c7_1b4=1 or c7_1b5=1]	c7_1d	(Number of years)

C 7.2 Pricing

Question	Variable	Answer
Does this establishment decide the pricing strategies in house? [SKIP: If c7_2a1=1 go to question c7_2b1]	c7_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c7_2a2=1 go to question c7_2b1]	c7_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c7_3a1]	c7_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following pricing strategies?	Variable	Answer	
Manual Cost	c7_2b1	1 = Yes 2 = No	-9 = Don't know
Automated markup (excel or similar)	c7_2b2	1 = Yes 2 = No	-9 = Don't know
Automated promotional (e.g. planning prices based on seasonality or other predictable events)	c7_2b3	1 = Yes 2 = No	-9 = Don't know
Dynamic pricing systems (using specific software to predict demand and adjust prices)	c7_2b4	1 = Yes 2 = No	-9 = Don't know
Personalized pricing driven by predictive analytics (e.g. data mining, machine learning)	c7_2b5	1 = Yes 2 = No	-9 = Don't know
Other	c7_2b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the pricing strategy used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c7_2b variables]	Variable	Answer
	c7_2c	1 = Manual Cost 2 = Automated markup (excel or similar) 3 = Automated promotional (e.g. planning prices based on seasonality or other predictable events) 4 = Dynamic pricing systems (using specific software to predict demand and adjust prices)

		5 = Personalized pricing (e.g. data mining, machine learning) 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years this establishment has been using dynamic pricing systems or personalized pricing for pricing strategies? [CONDITION: ask this question only if c7_2b4=1 or c7_2b5=1]	c7_2d	(Number of years)

Is there any significant regulation that limits price mechanism decision of this establishment?	c7_2da	1 = Yes 2 = No -9 = Don't know
What is the agency regulating the price mechanism for this establishment?	c7_2db	Name of the agency

C7.3 Merchandising

Question	Variable	Answer
Does this establishment make strategic decisions about what products are sold and how they are displayed to the costumers in house? [SKIP: If c7_3a1=1 go to question c7_3b1]	c7_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c7_3a2=1 go to question c7_3b1]	c7_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c7_4a1]	c7_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following merchandising strategies?	Variable	Answer	
Manually selecting products	c7_3b1	1 = Yes 2 = No	-9 = Don't know
Category Management tools (decide how many products of each category to sell)	c7_3b2	1 = Yes 2 = No	-9 = Don't know
Retail Merchandising Systems or Digital Merchandising (specialized software that takes into account the turnover, inventory, and space)	c7_3b3	1 = Yes 2 = No	-9 = Don't know
Product trend analytics (forward-looking strategies based on Big data analytics, or Machine learning)	c7_3b4	1 = Yes 2 = No	-9 = Don't know
Other	c7_3b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the merchandising strategy used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c7_3b variables]	Variable c7_3c	Answer 1 = Manually selecting products 2 = Category Management tools (decide how many products of each category to sell) 3 = Retail Merchandising Systems or Digital Merchandising (specialized software that takes into account the turnover, inventory, and space) 4 = Product trend analytics (forward-looking strategies based on Big data analytics, or Machine learning) 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using digital merchandising or product trend analysis for merchandising? [CONDITION: ask this question only if c7_3b3=1 or c7_3b4=1]	c7_3d	(Number of years)

C7.4 Inventory

Question	Variable	Answer
Does this establishment manage inventory in house? [SKIP: If c7_4a1=1 go to question c7_4b1]	c7_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c7_4a2=1 go to question c7_4b1]	c7_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c7_5a1]	c7_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following inventory methods?	Variable	Answer	
Handwritten record keeping	c7_4b1	1 = Yes 2 = No	-9 = Don't know
Computer databases with manual updates	c7_4b2	1 = Yes 2 = No	-9 = Don't know
Warehouse Management System with specialized software	c7_4b3	1 = Yes 2 = No	-9 = Don't know
Automated inventory control (CAO), Vendor managed inventory, and/or Radio-frequency identification	c7_4b4	1 = Yes 2 = No	-9 = Don't know
Automated Storage and Retrieval systems (AS/RS)	c7_4b5	1 = Yes 2 = No	-9 = Don't know

Other	c7_4b6	1 = Yes 2 = No	-9 = Don't know
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Question: What is the inventory method use more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c7_4b variables]	Variable c7_4c	Answer 1 = Handwritten record keeping 2 = Computer databases with manual updates 3 = Warehouse Management System with specialized software 4 = Automated inventory control (CAO) or Vendor managed inventory, or Radio-frequency identification 5 = Automated Storage and Retrieval systems 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using automated inventory systems for food storage? [CONDITION: ask this question only if c7_4b4 = 1 or c7_4b5=1]	c7_4d	(Number of years)

C7.5 Advertisement

Question	Variable	Answer
Does this establishment use in-house expertise to implement advertisement strategies? [SKIP: If c7_5a1=1 go to question c7_5b1]	c7_5a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c7_5a2=1 go to question c7_5b1]	c7_5a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question D1]	c7_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following advertisement channels?	Variable	Answer	
Paper based communication: instore signage, newspaper ads, leaflets	c7_5b1	1 = Yes 2 = No	-9 = Don't know
Radio, Billboards, TV	c7_5b2	1 = Yes 2 = No	-9 = Don't know
Email or mobile phone	c7_5b3	1 = Yes 2 = No	-9 = Don't know
Social Media (YouTube, Facebook, Twitter, Instagram) – customer cluster	c7_5b4	1 = Yes 2 = No	-9 = Don't know

Search Engine Marketing to customize advertisement	c7_5b5	1 = Yes 2 = No	-9 = Don't know
Big data Analytics or Artificial Intelligence to generate personalized advertisement	c7_5b6	1 = Yes 2 = No	-9 = Don't know
Other	c7_5b7	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the main advertisement channel and strategy used in this facility?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c7_5b variables]</p>	<p>Variable c7_5c</p>	<p>Answer</p> <p>1 = Paper based communication 2 = Radio, Billboards, TV 3 = Email or mobile phone 4 = Social Media (YouTube, Facebook, Twitter, Instagram) 5 = Search Engine Marketing 6 = Big data or Artificial Intelligence 7 = Other -9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years has this establishment been using search engine marketing or big data (artificial intelligence) for advertisement?</p> <p>[CONDITION: ask this question only if c7_5b5=1 or c7_5b6=1]</p>	c7_5d	(Number of years)

8. Banking (services)

Question: What customer service is available in these facilities?	Variable	Answer
What is the number of checking accounts managed by this establishment?	c8_0a	(Number) -9 = Don't know -7 = Not applicable
What is the number of saving accounts managed by this establishment?	c8_0b	(Number) -9 = Don't know -7 = Not applicable
What is the number of loans managed by this establishment?	c8_0c	(Number) -9 = Don't know -7 = Not applicable

C8.1 Customer Services related to checking and saving accounts

Question	Variable	Answer
Does this establishment provide customer service related to checking and saving accounts (e.g. deposit, payment, transfers)? [SKIP: If c8_1a1=1 go to question c8_1b1]	c8_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c8_1a2=1 go to question c8_1b1]	c8_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c8_2a1]	c8_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment provide any of the following customer services?	Variable	Answer	
Teller (Face-to-face)	c8_1b1	1 = Yes 2 = No	-9 = Don't know
ATM machines	c8_1b2	1 = Yes 2 = No	-9 = Don't know
On-line on company website	c8_1b3	1 = Yes 2 = No	-9 = Don't know
Mobile application of the company	c8_1b4	1 = Yes 2 = No	-9 = Don't know
Mobile Banking	c8_1b5	1 = Yes 2 = No	-9 = Don't know
Other	c8_1b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the customer service used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among c8_1b variables]	Variable c8_1c	Answer 1 = Teller (Face-to-face) 2 = ATM machines 3 = On-line on company website 4 = Mobile application of the company 5 = Mobile Banking 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using online on company website, mobile application or mobile banking? [CONDITION: ask this question only if c8_1b3=1 or c8_1b4=1 or c8_1b5=1]	c8_1d	(Number of years)

C8.2 Verify clients' identity and avoid fraud

Question	Variable	Answer
Does this establishment handle the client identification and fraud in house? [SKIP: If c8_2a1=1 go to question c8_2b1]	c8_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c8_2a2=1 go to question c8_2b1]	c8_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c8_3a1]	c8_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following verification methods for client identification?	Variable	Answer	
Teller (Face-to-face) with documentation	c8_2b1	1 = Yes 2 = No	-9 = Don't know
Use of online passwords	c8_2b2	1 = Yes 2 = No	-9 = Don't know
Use of online passwords combined with security Token devices	c8_2b3	1 = Yes 2 = No	-9 = Don't know
Use of digital authentication service provided by specialized firms	c8_2b4	1 = Yes 2 = No	-9 = Don't know
Biometric identity verification	c8_2b5	1 = Yes 2 = No	-9 = Don't know
Blockchain	c8_2b6	1 = Yes 2 = No	-9 = Don't know
Other	c8_2b7	1 = Yes 2 = No	-9 = Don't know

Question: What is the verification method used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c8_2b variables]	Variable c8_2c	Answer 1 = Teller (Face-to-face) with documentation 2 = Use of online passwords 3 = Use of online passwords combined with security Token devices 4 = Use of digital authentication service provided by specialized firms 5 = Biometric identity verification 6 = Blockchain 7 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using digital authentication provided by specialized firms, biometry identity verification or block chain? [CONDITION: ask this question only if c8_2b4=1 or c8_2b5=1 or c8_2b6=1]	c8_2d	(Number of years)

C8.3 Loan applications

Question	Variable	Answer
Does this establishment handle loan applications in house? [SKIP: If c8_3a1=1 go to question c8_3b1]	c8_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c8_3a2=1 go to question c8_3b1]	c8_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c8_4a1]	c8_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for handling loan applications?	Variable	Answer	
Loan officer, paper based, in the establishment	c8_3b1	1 = Yes 2 = No	-9 = Don't know
Mobile/Phone application plus paper based submitted to the establishment	c8_3b2	1 = Yes 2 = No	-9 = Don't know
Channel partners, Loan officer, paper based	c8_3b3	1 = Yes 2 = No	-9 = Don't know
Internet/Mobile phone applications (fully digital process)	c8_3b4	1 = Yes 2 = No	-9 = Don't know
Other	c8_3b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the method for handling loan applications used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c8_3b variables]	Variable c8_3c	Answer 1 = Loan officer, paper based, in the establishment 2 = Mobile/Phone application plus paper based submitted to the establishment 3 = Channel partners, Loan officer, paper based 4 = Internet/Mobile phone applications (fully digital process) 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using internet application (plus paper-based) or mobile phone applications? [CONDITION: ask this question only if c8_3b4=1]	c8_3d	(Number of years)

C8.4 Approval process of credit applications

Question	Variable	Answer
Does this establishment handle the approval process of credit applications in house? [SKIP: If c8_4a1=1 go to question c8_4b1]	c8_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c8_4a2=1 go to question c8_4b1]	c8_4a2	1 = Yes. 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c8_5a1]	c8_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following approval processes of credit applications?	Variable	Answer	
Analyst decision based on papers delivered in the application	c8_4b1	1 = Yes 2 = No	-9 = Don't know
Analyst decision based on digital information	c8_4b2	1 = Yes 2 = No	-9 = Don't know
Automated decision mechanisms using specialized software	c8_4b3	1 = Yes 2 = No	-9 = Don't know
Credit appraisal algorithm using Artificial Intelligence or Big Data Analytics	c8_4b4	1 = Yes 2 = No	-9 = Don't know
Other	c8_4b5	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the approval process of credit applications used more often by this establishment?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c8_4b variables]</p>	<p>Variable c8_4c</p>	<p>Answer</p> <p>1 = Analyst decision based on papers delivered in the application</p> <p>2 = Analyst decision based on digital information</p> <p>3 = Automated decision mechanisms using specialized software</p> <p>4 = Credit appraisal algorithm using Artificial Intelligence or Big Data Analytics</p> <p>5 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years has this establishment been using automated decision mechanisms using specialized software, big data or artificial intelligence?</p> <p>[CONDITION: ask this question only if c8_4b3=1 or c8_4b4=1]</p>	c8_4d	(Number of years)

C8.5 Technologies of Operational Support Area

Question	Variable	Answer
<p>Does this establishment handle operational support area in house?</p> <p>[SKIP: If c8_5a1=1 go to question c8_5b1]</p>	c8_5a1	1 = Yes 2 = No
<p>Is this task outsourced to another unit of the same firm?</p> <p>[CONDITION: Only for multi-establishment firms (s4=1)]</p> <p>[SKIP: If c8_5a2=1 go to question c8_5b1]</p>	c8_5a2	1 = Yes. 2 = No -9 = Don't know
<p>Is this task outsourced to another firm?</p> <p>[SKIP: Go to question D1]</p>	c8_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for handling operational support area?	Variable	Answer	
Purely rely on writing records from employees	c8_5b1	1 = Yes 2 = No	-9 = Don't know
Digital accounting and document management system using PCs	c8_5b2	1 = Yes 2 = No	-9 = Don't know
Digital Network (Centralized system across branches)	c8_5b3	1 = Yes 2 = No	-9 = Don't know
Other	c8_5b4	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the method for handling operational support area used more often by this establishment?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c8_5b variables]</p>	<p>Variable c8_5c</p>	<p>Answer</p> <p>1 = Purely rely on writing records from employees</p> <p>2 = Digital accounting and document management system using PCs</p> <p>3 = Digital Network (Centralized system across branches)</p> <p>4 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years has this establishment been using digital accounting or digital network?</p> <p>[CONDITION: ask this question only if c8_5b2==1 or c8_5b3==1]</p>	<p>c8_5d</p>	<p>(Number of years)</p>

9. Transportation (services)

Question: What are the main transportation services provide by this establishment?	Variable	Answer	
Passengers	c9_0a1	1 = Yes 2 = No	-9 = Don't know
Freight	c9_0a2	1 = Yes 2 = No	-9 = Don't know
Other	c9_0a3	1 = Yes 2 = No	-9 = Don't know

Question: What is the type of the fleet used by this establishment?	Variable	Answer	
Trucks	c9_0b1	1 = Yes 2 = No	-9 = Don't know
Cars	c9_0b2	1 = Yes 2 = No	-9 = Don't know
Motorcycle	c9_0b3	1 = Yes 2 = No	-9 = Don't know
Others	c9_0b4	1 = Yes 2 = No	-9 = Don't know

Question: What is the number of vehicles used by this establishment by type of the fleet?	Variable	Answer	
Trucks [CONDITION: Ask only if c9_0b1=1]	c9_0b5	Number	-9 = Don't know -7 Does not apply
Cars [CONDITION: Ask only if c9_0b2=1]	c9_0b6	Number	-9 = Don't know -7 Does not apply
Motorcycle [CONDITION: Ask only if c9_0b3=1]	c9_0b7	Number	-9 = Don't know -7 Does not apply

Question: What is the number of vehicles with the following features?	Variable	Answer	
Automatic transmission [CONDITION: Ask only if any of the c9_0b answers is 1]	c9_0b8	Number	-9 = Don't know -7 Does not apply
Hybrid or electric [CONDITION: Ask only if any of the c9_0b answers is 1]	c9_0b9	Number	-9 = Don't know -7 Does not apply
GPS tracking system	c9_0b9	Number	-9 = Don't know -7 Does not apply

Question:	Variable	Answer	
Are there any regulations regarding the number of hours that drivers can drive uninterruptedly that applies for this establishment?	c9_0c1	1 = Yes 2 = No	-9 = Don't know
Are there any regulations regarding the type of vehicles allowed to be used for business purpose by this establishment?	c9_0c2	1 = Yes 2 = No	-9 = Don't know

C 9.1 Transportation Planning

Question	Variable	Answer
Does this establishment make load optimization plans in house? [SKIP: If c9_1a1=1 go to question c9_1b1]	c9_1a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c9_1a2=1 go to question c9_1b1]	c9_1a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c9_2a1]	c9_1a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following methods for transportation planning?	Variable	Answer	
Handwritten information to create load plans	c9_1b1	1 = Yes 2 = No	-9 = Don't know
Information collected by electronic file share (e.g. Email or FAX to create load plans)	c9_1b2	1 = Yes 2 = No	-9 = Don't know
Batch information collected by installed software to create ERP generated load plans	c9_1b3	1 = Yes 2 = No	-9 = Don't know
Real time information by online software interface with ERP to create load plans	c9_1b4	1 = Yes 2 = No	-9 = Don't know
Other	c9_1b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the transportation planning software application used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c9_1b variables]	Variable	Answer
	c9_1c	1 = Information collected by non-specialized workers to create load plans 2 = Information collected by electronic file share (e.g. Email or FAX to create load plans) 3 = Batch information collected by software installed ERP to create ERP generated load plans 4 = Real time information by online software interface with ERP to create load plans 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using batch information or real time information collected by specialized software integrated with ERP to create load plans? [CONDITION: ask this question only if c9_1b3=1 or c9_1b4=1]	c9_1d	(Number of years)

C 9.2 Transportation Plan Execution

Question	Variable	Answer
Does this establishment execute transportation load plans? [SKIP: If c9_2a1=1 go to question c9_2b1]	c9_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c9_2a2=1 go to question c9_2b1]	c9_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c9_3a1]	c9_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following processes for loading tender, routing, and dispatching?	Variable	Answer	
Manual process with the support of fax, text, or phone calls	c9_2b1	1 = Yes 2 = No	-9 = Don't know
Manual process with the support of digital platforms or mobile apps	c9_2b2	1 = Yes 2 = No	-9 = Don't know
Execution plan exchanged via web based direct to delivery equipment for interface with Driver: GPS,- routing, tracking, Email, text	c9_2b3	1 = Yes 2 = No	-9 = Don't know
Specific software interface via Internet: GPS, Dynamic routing (weather ,traffic), Elog – Driver status and safety, load monitoring	c9_2b4	1 = Yes 2 = No	-9 = Don't know
File exchange between ERP integrated applications and delivery equipment	c9_2b5	1 = Yes 2 = No	-9 = Don't know
Other	c9_2b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the data file exchange system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one	Variable	Answer
	c9_2c	1 = Manual process with the support of fax, text, or phone calls 2 = Manual process with the support of digital platforms or mobile apps 3 = Execution plan exchanged via web based direct to delivery equipment for interface with Driver: GPS,- routing, tracking, Email, text

option among c9_2b variables]		4 = Specific software interface via Internet: GPS, Dynamic routing (weather ,traffic), Elog – Driver status and safety, load monitoring 5 = File exchange between ERP integrated applications 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using specialized software for transportation load plan execution? [CONDITION: ask this question only if c9_2b3=1 or c9_2b4=1 or c9_2b5=1]	c9_2d	(Number of years)

C 9.3 Transportation Monitoring

Question	Variable	Answer
Does this establishment monitor load and delivery in house? [SKIP: If c9_3a1=1 go to question c9_3b1]	c9_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c9_3a2=1 go to question c9_3b1]	c9_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c9_4a1]	c9_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following systems for monitoring load and delivery?	Variable	Answer	
Event driven at predetermined intervals with the support of fax, text, or phone calls	c9_3b1	1 = Yes 2 = No	-9 = Don't know
Event driven at predetermined intervals with the support of digital platforms or mobile apps	c9_3b2	1 = Yes 2 = No	-9 = Don't know
Paper documentation exchange on daily, weekly or monthly intervals with data entry into ERP or planning system– invoice, bill of lading, regulatory, etc.	c9_3b3	1 = Yes 2 = No	-9 = Don't know
Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring	c9_3b4	1 = Yes 2 = No	-9 = Don't know
File exchange between ERP integrated applications and delivery equipment software application(s)	c9_3b5	1 = Yes 2 = No	-9 = Don't know
Other	c9_3b6	1 = Yes 2 = No	-9 = Don't know

Question: What is the transportation monitoring system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c9_3b variables]	Variable c9_3c	Answer 1 = Event driven at predetermined intervals with the support of fax, text, or phone calls 2 = Event driven at predetermined intervals with the support of digital platforms or mobile apps 3 = Paper documentation exchange on daily, weekly or monthly intervals with data entry into ERP or planning system– invoice, bill of lading, regulatory, etc. 4 = Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring 5 = File exchange between ERP integrated applications and delivery equipment software application(s) 6 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using a system integrated into ERP, specialized software, or batch processing of electronic data exchange for monitoring transportation? [CONDITION: ask this question only if c9_3b3=1 or c9_3b4=1 or c9_3b5=1]	c9_3d	(Number of years)

C 9.4 Transportation Performance Measurement

Question	Variable	Answer
Does this establishment measure transport performance in house? [SKIP: If c9_4a1=1 go to question c9_4b1]	c9_4a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c9_4a2=1 go to question c9_4b1]	c9_4a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c9_5a1]	c9_4a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following transport performance measurement systems?	Variable	Answer	
Manually monitored and reported	c9_4b1	1 = Yes 2 = No	-9 = Don't know
Computer with non-specialized software such as Excel, Word, Power Point, or equivalent	c9_4b2	1 = Yes 2 = No	-9 = Don't know
Computer or apps with specialized transportation reporting applications by service and cost performance metrics	c9_4b3	1 = Yes 2 = No	-9 = Don't know

Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring	c9_4b4	1 = Yes 2 = No	-9 = Don't know
File exchange between ERP integrated applications and delivery equipment software application(s)	c9_4b5	1 = Yes 2 = No	-9 = Don't know
Other	c9_4b6	1 = Yes 2 = No	-9 = Don't know

<p>Question: What is the transportation performance measurement system used more often in this facility?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c9_4b variables]</p>	<p>Variable</p> <p>c9_4c</p>	<p>Answer</p> <p>1 = Manually monitored and reported</p> <p>2 = Computer with non-specialized software such as Excel, Word, Power Point, or equivalent</p> <p>3 = Computer or apps with specialized transportation reporting applications by service and cost performance metrics</p> <p>4 = Information collected by software installed on the transportation equipment: GPS, E-log – Driver status, load monitoring</p> <p>5 = File exchange between ERP integrated applications and delivery equipment software application(s)</p> <p>6 = Other</p> <p>-9 = Don't know</p>
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Question	Variable	Answer
<p>For how many years has this establishment been using computers with specialized software or Apps or ERP integrated applications reporting performance metrics or fuel consumption?</p> <p>[CONDITION: ask this question only if c9_4b3=1 or c9_4b4=1 or c9_4b5=1]</p>	c9_4d	(Number of years)

C 9.5 Fleet Asset Management/Maintenance – Equipment/Operator

Question	Variable	Answer
<p>Does this establishment manage fleet assets in house?</p> <p>[SKIP: If c9_5a1=1 go to question c9_5b1]</p>	c9_5a1	1 = Yes 2 = No
<p>Is this task outsourced to another unit of the same firm?</p> <p>[CONDITION: Only for multi-establishment firms (s4=1)]</p> <p>[SKIP: If c9_5a2=1 go to question c9_5b1]</p>	c9_5a2	1 = Yes 2 = No -9 = Don't know
<p>Is this task outsourced to another firm?</p> <p>[SKIP: Go to question D1]</p>	c9_5a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following fleet management systems?	Variable	Answer	
All manual paper driven system (e.g. repair, regulatory, licensing, insurance, warranty, performance, and parts management)	c9_5b1	1 = Yes 2 = No	-9 = Don't know
Information collected by electronic file and shared through Email or FAX	c9_5b2	1 = Yes 2 = No	-9 = Don't know
Batch information collected by software installed on transportation equipment – ETM (engine monitoring) for fleet management documentation and reporting	c9_5b3	1 = Yes 2 = No	-9 = Don't know
Data exchange via Web between ERP and software installed on transportation equipment – ETM, (engine monitoring) Elog and GPS (driver monitor) for fleet management documentation and reporting	c9_5b4	1 = Yes 2 = No	-9 = Don't know
Other	c9_5b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the fleet management system used more often in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c9_5b variables]	Variable c9_5c	Answer
		1 = All manual paper driven system (e.g. repair, regulatory, licensing, insurance, warranty, performance, and parts management) 2 = Information collected by electronic file and shared through Email or FAX 3 = Batch information collected by software installed on transportation equipment – ETM (engine monitoring) for fleet management documentation and reporting 4 = Data exchange via Web between ERP and software installed on transportation equipment – ETM, (engine monitoring) Elog and GPS (driver monitor) for fleet management documentation and reporting 5 = Other -9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using batch information collected by specialized software or real-time information by on-line software interface with ERP? [CONDITION: ask this question only if c9_5b3=1 or c9_5b4=1]	c9_5d	(Number of years)

10. Health services (services)

Question	Answer
How is this hospital classified in terms of level of complexity for health treatment care?	c10_0 1 = Level 1 : Primary Care 2 = Level 2 : Specialty Physician Care 3 = Level 3 : Acute Care General Hospital or Ambulatory Surgical Center 4 = Level 4 : Specialty Acute Care Hospital -9 = Don't know -7 = Not applicable

OBS: This question may need to be adapted to the health system in each country.

Question	Answer
What is the average number of patient visits per day in this establishment?	c10_0a Number of patients -9 = Don't know -7 = Not applicable
What is the average number of patients spending the night in this establishment per day	c10_0b Number of patients -9 = Don't know -7 = Not applicable
How many full-time doctors work in this establishment?	c10_0c Number of full-time doctors -9 = Don't know -7 = Not applicable
How many of full-time nurses work in this establishment?	c10_0d Number of full-time nurses -9 = Don't know -7 = Not applicable

C 10.1 Infrastructure and machines available

Infrastructure/Technology	Is this infrastructure or equipment available in this establishment? 1= Yes 0= No -9 = Don't know -7 = Not applicable	What is the number of equipment in "workable" conditions available? [CONDITION: IF these infrastructures or equipment are available.]
Emergency department	c10_1a1	c10_1b1 Number of beds
Postoperative care area	c10_1a2	c10_1b2 Number of beds
Intensive Care Unit	c10_1a3	c10_1b3 Number of beds

Pretested blood available (blood bank)	c10_1a4	c10_1b4 Number of tests per day
Lab to test blood and urine	c10_1a5	c10_1b5 Number of tests per day
Functioning X-ray machine	c10_1a6	c10_1b6 Number of machines
Functioning ultrasound machine	c10_1a7	c10_1b7 Number of machines
Functioning Computerized Tomography CT scan	c10_1a8	c10_1b8 Number of machines
Functioning MRI machine	c10_1a9	c10_1b9 Number of machines
Functioning ultrasound machine?	c10_1a10	c10_1b10 Number of machines
Pulse oximetry	c10_1a11	c10_1b11 Number of machines
Electrocardiogram (ECG)	c10_1a12	c10_1b12 Number of machines

C 10.2 Scheduling appointments (for clinics)

Question	Variable	Answer
Does this establishment schedule appointments? [SKIP: If c10_2a1=1 go to question c10_2b1]	c10_2a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c10_2a2=1 go to question c10_2b1]	c10_2a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c10_3a1]	c10_2a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following scheduling systems?	Variable	Answer	
Personal visit and paper	c10_2b1	1 = Yes 2 = No	-9 = Don't know
Phone call, SMS, or Email	c10_2b2	1 = Yes 2 = No	-9 = Don't know
Specialized software or mobile app for appointment WITHOUT automated reminders	c10_2b3	1 = Yes 2 = No	-9 = Don't know
Specialized software or mobile app for appointment WITH automated reminders and confirmation	c10_2b4	1 = Yes 2 = No	-9 = Don't know
Other	c10_2b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the scheduling system used more often in these facilities? [CONDITION: Ask only if the answer is YES for more than one option among c10_2b variables]	Variable c10_2c	Answer 1 = Personal visit and paper 2 = Phone call, SMS, or Email 3 = Specialized software or mobile app for appointment WITHOUT automated reminders 4 = Specialized software or mobile app for appointment WITH automated reminders and confirmation 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been scheduling appointments with specialized software, webpage, or mobile app? [CONDITION: ask this question only if c10_2b3=1 or c10_2b4=1]	c10_2d	(Number of years)

C 10.3 Management of Patient Records (Physician's note)

Question	Variable	Answer
Does this establishment handle patient records in house? [SKIP: If c10_3a1=1 go to question c10_3b1]	c10_3a1	1 = Yes 2 = No
Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c10_3a2=1 go to question c10_3b1]	c10_3a2	1 = Yes 2 = No -9 = Don't know
Is this task outsourced to another firm? [SKIP: Go to question c10_4a1]	c10_3a3	1 = Yes 2 = No -9 = Don't know -7 = Not applicable

Question: Does this establishment use any of the following patient record keeping systems?	Variable	Answer	
Handwritten process	c10_3b1	1 = Yes 2 = No	-9 = Don't know
Digital patient records using standard software, such as Excel and Word	c10_3b2	1 = Yes 2 = No	-9 = Don't know
Electronic Health Records (EHR) with specialized software	c10_3b3	1 = Yes 2 = No	-9 = Don't know
Cloud-based Electronic Health Records (EHR) integrated to analytical and management tools	c10_3b4	1 = Yes 2 = No	-9 = Don't know
Other	c10_3b5	1 = Yes 2 = No	-9 = Don't know

Question: What is the patient record keeping system used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c10_3b variables]	Variable c10_3c	Answer 1 = Handwritten process 2 = Digital patient records using standard software, such as Excel and Word 3 = Electronic Health Records (EHR) with specialized software 4 = Cloud-based Electronic Health Records (EHR) integrated to analytical and management tools 5 = Other -9 = Don't know
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Question	Variable	Answer
For how many years has this establishment been using electronic health records? [CONDITION: ask this question only if c10_3b3=1 or c10_3b4=1]	c10_3d	(Number of years)

C 10.4 Medication management and administration

Question	Variable	Answer
Does this establishment have a pharmacy to provide medication for patients in house? [SKIP: If c10_4a1=2 go to question c10_4c1]	c10_4a1	1 = Yes 2 = No

Question: What of the following options better describe the way this establishment handle:	Variable	Answer
The stock of medication in the (internal) pharmacy	c10_4b1	1 = Manual accounting 2 = Electronic system accounting with manual order to suppliers 3 = Electronic system accounting with automated order to suppliers -9 = Don't know (SPONTANEOUS) -7 = Not applicable (SPONTANEOUS)
The order of medication to patients by physicians	c10_4b2	1 = Manual order 2 = Electronic order -9 = Don't know (SPONTANEOUS) -7 = Not applicable (SPONTANEOUS)

Question: Does this establishment use any of the following medication management and administration systems?	Variable	Answer	
Handwritten monitoring administration of medicine	c10_4c1	1 = Yes 2 = No	-9 = Don't know
Barcode or electronic identification for medicine administration to patients	c10_4c2	1 = Yes 2 = No	-9 = Don't know
Other	c10_4c3	1 = Yes 2 = No	-9 = Don't know

Question	Variable	Answer
For how many years has this establishment been using barcode identification for medicine administration to patients? [CONDITION: ask this question only if c10_4c2=1]	c10_4d	(Number of years)

C 10.5 Procedures (Sepsis, Childbirth, Trauma, and Strokes)

Question: What is the availability of the following sepsis treatment in this establishment?	Variable	Answer
Treatment with antibiotics	c10_5a1	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
Treatment with advanced therapies, such as resuscitation, mechanical ventilation, glucose control, and renal control	c10_5a2	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

Question: What is the availability of the following childbirth procedures in this establishment?	Variable	Answer
Cesarean Section	c10_5b1	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
High-risk labor	c10_5b2	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

Question: What is the availability of the following procedures related to trauma in this establishment?	Variable	Answer
Traction (closed fracture)	c10_5c1	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
Open Treatment of Fracture	c10_5c2	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable

Question: What is the availability of the following procedures related to Myocardial infarction/-strokes in this establishment?	Variable	Answer
Defibrillation	c10_5d1	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable
Coronary Angiography or Multivessel coronary revascularization	c10_5d2	1 = It is always available. 2 = It is NOT always available. 3 = It is NEVER available. -9 = Don't know -7 = Not applicable