
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 workers from 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 other workers or 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, rotators, 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 this establishment has 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 |

| Question | Variable | Answer |
|---|--------------|-------------------|
| For how many years this establishment has 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 |

| 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] | Variable | Answer |
|--|--------------|---|
| | c1_3c | 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 |
|--|--|--|

| Question | Variable | Answer |
|--|----------|-------------------|
| For how many years this establishment has 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 ou 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 enterprise? [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 | c1_4b4 | 1 = Yes 2 = No | -9 = Don't know |

| | | | |
|---|---------------|-------------------|-----------------|
| the worker (without support of digital technologies) | | | |
| 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 |

| | | |
|--|--------------------------|--|
| <p>Question: What is the harvesting/training/pruning method used more often in this establishment?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c1_4b variables]</p> | Variable c1_4c | <p>Answer</p> <p>1 = Manual harvesting, training, pruning, or picking</p> <p>2 = Animal Aided Instruments</p> <p>3 = Human-operated machines or single-axle tractor, with one specific function</p> <p>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)</p> <p>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)</p> <p>6 = Other</p> <p>-9 = Don't know</p> |
|--|--------------------------|--|

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

C1.5 Storage (Post-Harvesting)

| Question | Variable | Answer |
|--|---------------|---|
| <p>Does this farm storage its products in house?</p> <p>[SKIP: If c1_5a1=1 go to question c1_5b1]</p> | c1_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 c1_5a2=1 go to question c1_5b1]</p> | c1_5a2 | 1 = Yes 2 = No -9 = Don't know |
| <p>Is this task outsourced to another firm?</p> <p>[SKIP: Go to question c1_6a1]</p> | 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 |
|---|--------------|-------------------|
| For how many years this establishment has 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) |

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 | Answer |
|--|--------------|--|
| | c1_6c | 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 this establishment has 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 |
|--|--------------------------|---|

| 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 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> |
|---|----------------------------------|---|

| Question | Variable | Answer |
|---|--------------|-------------------|
| <p>For how many years this establishment has 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 | |
|--|---------------|-------------------|-----------------|
| 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 |
|--|--------------------------|--|
| | | |

| 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 this establishment has 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 |

| 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 | Answer |
|--|--------------|---|
| | c3_2c | 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 |

| 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? [CONDITION: Ask only if the answer is YES for more than one option among c3_3b variables] | Variable | Answer |
|--|--------------|---|
| | c3_3c | 1 = Minimal-processing preservation methods 2 = Anti-bacterial wash or soaking 3 = Thermal Processing Technologies 4 = Other advanced methods such as High-pressure processing (HPP) and Pulsed electric field (PEF) 5 = Other -9 = Don't know |

| 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 |
|--|---------------|-------------------|

| | | |
|--|---------------------------|--|
| 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 |
|--|---------------------------|--|

| 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 |
|---|--------------------------|---|

| Question | Variable | Answer |
|---|--------------|-------------------|
| For how many years this establishment has 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 c4_2c | Answer |
|--|--------------------------|---|
| | | 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 this establishment has 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 this establishment has 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 this establishment has 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

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 | Answer |
|--|--------------|--|
| | c5_1c | 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 | Answer |
|---|--------------|--|
| | c5_2c | 1 = Pressing of skin panels using operators 2 = Pressing of structural components using operators 3 = Welding of main body using operators |

| | | |
|--|--|--|
| | | <p>4 = Pressing of skin panels automated using robotics</p> <p>5 = Pressing of structural components automated using robotics</p> <p>6 = Welding of main body automated using robotics</p> <p>7 = Other</p> <p>-9 = Don't know</p> |
|--|--|--|

| Question | Variable | Answer |
|--|--------------|-------------------|
| <p>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?</p> <p>[CONDITION: ask this question only if c5_2b4=1 or c5_2b5=1 or c5_2b6=1]</p> | c5_2d | (Number of years) |

C5.3 Painting

| Question | Variable | Answer |
|--|---------------|--|
| <p>Does this establishment handle painting process in house?</p> <p>[SKIP: If c5_3a1=1 go to question c5_3b1]</p> | c5_3a1 | <p>1 = Yes</p> <p>2 = No</p> |
| <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 c5_3a2=1 go to question c5_3b1]</p> | c5_3a2 | <p>1 = Yes</p> <p>2 = No</p> <p>-9 = Don't know</p> |
| <p>Is this task outsourced to another firm?</p> <p>[SKIP: Go to question c5_4a1]</p> | c5_3a3 | <p>1 = Yes</p> <p>2 = No</p> <p>-9 = Don't know</p> <p>-7 = Not applicable</p> |

| Question: Does this establishment use any of the following painting methods? | Variable | Answer | |
|--|---------------|------------------------------|-----------------|
| Water-based painting using operators | c5_3b1 | <p>1 = Yes</p> <p>2 = No</p> | -9 = Don't know |
| Solvent-based painting using operators | c5_3b2 | <p>1 = Yes</p> <p>2 = No</p> | -9 = Don't know |
| Water-based painting automated using robotics | c5_3b3 | <p>1 = Yes</p> <p>2 = No</p> | -9 = Don't know |
| Solvent-based painting automated using robotics | c5_3b4 | <p>1 = Yes</p> <p>2 = No</p> | -9 = Don't know |
| Other | c5_3b5 | <p>1 = Yes</p> <p>2 = No</p> | -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 c5_3c | Answer 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 c5_4c | Answer 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 this establishment has 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 |

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

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

6. Pharmaceutical Processing (Manufacturing)

| 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 c6_1c | Answer 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 has 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? [CONDITION: Ask only if the answer is YES for more than one option among c6_2b variables] | Variable c6_2c | Answer 1 = Beam Scales 2 = Analog Scales 3 = Electronic Scales 4 = Automated Weighing Systems 5 = Other -9 = Don't know |
|---|--------------------------|---|

| 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 | Answer |
|--|--------------|--|
| | c6_3c | 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 |

| 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. Wholesale and 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 |

| Question | Variable | Answer |
|--|---------------|--------------------------------------|
| For how many years has this establishment 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 | Answer |
|--|--------------|--|
| | c7_3c | 1 = Manually selecting products 2 = Category Management tools (decide how many products of each category to sell) |

| | | |
|--|--|---|
| | | <p>3 = Retail Merchandising Systems or Digital Merchandising (specialized software that takes into account the turnover, inventory, and space)</p> <p>4 = Product trend analytics (forward-looking strategies based on Big data analytics, or Machine learning)</p> <p>5 = Other</p> <p>-9 = Don't know</p> |
|--|--|---|

| 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 |

| | | |
|---|--------------------------|--|
| 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 |
|---|--------------------------|--|

| 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</p> <p>c7_5c</p> | <p>Answer</p> <p>1 = Paper based communication</p> <p>2 = Radio, Billboards, TV</p> <p>3 = Email or mobile phone</p> <p>4 = Social Media (YouTube, Facebook, Twitter, Instagram)</p> <p>5 = Search Engine Marketing</p> <p>6 = Big data or Artificial Intelligence</p> <p>7 = Other</p> <p>-9 = Don't know</p> |
|---|-------------------------------------|--|

| 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. Finance (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? | Variable | Answer |
|---|--------------|---|
| | c8_1c | 1 = Teller (Face-to-face) 2 = ATM machines |

| | | |
|---|--|---|
| [CONDITION: Ask only if the answer is YES for more than one option among c8_1b variables] | | 3 = On-line on company website 4 = Mobile application of the company 5 = Mobile Banking 6 = Other -9 = Don't know |
|---|--|---|

| Question | Variable | Answer |
|--|--------------|-------------------|
| For how many years this establishment has 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 method 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 |
|---|--------------------------|---|

| 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 |
|---|--------------------------|--|

| 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 |

| | | |
|--|--------------------------|--|
| Question: What is the approval process of credit applications used more often by this establishment? [CONDITION: Ask only if the answer is YES for more than one option among c8_4b variables] | Variable c8_4c | Answer 1 = Analyst decision based on papers delivered in the application 2 = Analyst decision based on digital information 3 = Automated decision mechanisms using specialized software 4 = Credit appraisal algorithm using Artificial Intelligence or Big Data Analytics 5 = Other -9 = Don't know |
|--|--------------------------|--|

| Question | Variable | Answer |
|---|--------------|-------------------|
| For how many years this establishment has been using automated decision mechanisms using specialized software, big data or artificial intelligence? [CONDITION: ask this question only if c8_4b3=1 or c8_4b4=1] | c8_4d | (Number of years) |

C8.5 Technologies of Operational Support Area

| Question | Variable | Answer |
|--|---------------|---|
| Does this establishment handle operational support area in house? [SKIP: If c8_5a1=1 go to question c8_5b1] | c8_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 c8_5a2=1 go to question c8_5b1] | c8_5a2 | 1 = Yes. 2 = No -9 = Don't know |
| Is this task outsourced to another firm? [SKIP: Go to question D1] | 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> |
|--|----------------------------------|---|

| Question | Variable | Answer |
|---|---------------------|--------------------------|
| <p>For how many years this establishment has 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. Land Transportation (Services)

| Question: What are the main transportation services provided 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 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=1] | c9_0b8 | Number | -9 = Don't know -7 = Does not apply |
| Hybrid or electric [CONDITION: Ask only if any of the c9_0b=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 option among c9_2b variables] | 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 |

| | | |
|--|--|---|
| | | <p>4 = Specific software interface via Internet: GPS, Dynamic routing (weather ,traffic), Elog – Driver status and safety, load monitoring</p> <p>5 = File exchange between ERP integrated applications</p> <p>6 = Other</p> <p>-9 = Don't know</p> |
|--|--|---|

| Question | Variable | Answer |
|---|--------------|-------------------|
| <p>For how many years has this establishment been using specialized software for transportation load plan execution?</p> <p>[CONDITION: ask this question only if c9_2b3=1 or c9_2b4=1 or c9_2b5=1]</p> | c9_2d | (Number of years) |

C 9.3 Transportation Monitoring

| Question | Variable | Answer |
|---|---------------|--|
| <p>Does this establishment monitor load and delivery in house?</p> <p>[SKIP: If c9_3a1=1 go to question c9_3b1]</p> | c9_3a1 | <p>1 = Yes</p> <p>2 = No</p> |
| <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_3a2=1 go to question c9_3b1]</p> | c9_3a2 | <p>1 = Yes</p> <p>2 = No</p> <p>-9 = Don't know</p> |
| <p>Is this task outsourced to another firm?</p> <p>[SKIP: Go to question c9_4a1]</p> | c9_3a3 | <p>1 = Yes</p> <p>2 = No</p> <p>-9 = Don't know</p> <p>-7 = Not applicable</p> |

| 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 |
|--|--------------------------|--|

| 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> |
|--|-------------------------------------|---|

| Question | Variable | Answer |
|--|--------------|-------------------|
| <p>For how many years has this establishment been using computer 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 |

| | | |
|---|---------------|---|
| Is this task outsourced to another firm? [SKIP: Go to question D1] | 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 appointments 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 |
|--|---------------------------|---|

| Question | Variable | Answer |
|--|---------------|-------------------|
| For how many years this establishment has 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 |
|--|---------------------------|--|

| Question | Variable | Answer |
|--|---------------|-------------------|
| For how many years this establishment has 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 this establishment has 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 |

11. Leather and Footwear (Manufacturing)

| Question: What of the following material does this establishment use to start production? | Variable | Answer | |
|---|----------------|-------------------|-----------------|
| Finished natural Leather | c11_01a | 1 = Yes 2 = No | -9 = Don't know |
| Man-made leather/ Synthetic | c11_01b | 1 = Yes 2 = No | -9 = Don't know |
| Textile (i.e, Mesh/ engineering mesh/ canvas etc) | c11_01c | 1 = Yes 2 = No | -9 = Don't know |
| Synthetic + Textile (mix-components man made) | c11_01d | 1 = Yes 2 = No | -9 = Don't know |
| Synthetic + Textile + Leather (mix components-natural and man-made) | c11_01e | 1 = Yes 2 = No | -9 = Don't know |
| Other | c11_01f | 1 = Yes 2 = No | -9 = Don't know |

| Question: What of the following footwear/ Leather goods is produced by this establishment? | Variable | Answer | |
|--|----------------|-------------------|-----------------|
| Basic (i.e: Footwear> oxford/ derby/ moccasin etc/ wallet/ carry bags etc) | c11_02a | 1 = Yes 2 = No | -9 = Don't know |
| Fashion (fashion shoe, fashion accessories/ sling bag, vanity bag etc.) | c11_02b | 1 = Yes 2 = No | -9 = Don't know |
| Sports or specific purpose (travel bags, sports bags, summer sandal, running shoe, hiking shoe, water sports shoe etc) | c11_02c | 1 = Yes 2 = No | -9 = Don't know |
| Protective shoes (industrial use) | c11_02d | 1 = Yes 2 = No | -9 = Don't know |
| Other | c11_02e | 1 = Yes 2 = No | -9 = Don't know |

| Question: What of the following finishes are available in this establishment? | Variable | Answer | |
|---|----------------|-------------------|-----------------|
| Screen print/ heat transfer | c11_03a | 1 = Yes 2 = No | -9 = Don't know |
| Embroidery | c11_03b | 1 = Yes 2 = No | -9 = Don't know |
| Seamless (no stitch) | c11_03c | 1 = Yes 2 = No | -9 = Don't know |
| Ink or Wax Polishing | c11_03d | 1 = Yes 2 = No | -9 = Don't know |
| Waterproofing | c11_03e | 1 = Yes | -9 = Don't know |

| | | | |
|-------|----------------|-------------------|-----------------|
| | | 2 = No | |
| Other | c11_03f | 1 = Yes 2 = No | -9 = Don't know |

C11.1 Design

| | | |
|--|----------------|-------------------|
| Do clients provide files for design to this establishment? [SKIP: If c11_1a1=2 go to question c11_1a3] | c11_1a1 | 1 = Yes 2 = No |
|--|----------------|-------------------|

| | | |
|--|----------------------------|--|
| Question: What is the most common file provided by clients for design? | Variable c11_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 |
|--|----------------------------|--|

| Question | Variable | Answer |
|--|----------------|---|
| Does this establishment do design drawing in house? [SKIP: If c11_1a3=1 go to question c11_1b1] | c11_1a3 | 1 = Yes 2 = No -7 = Not applicable |
| Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c11_1a4=1 go to question c11_1b1] | c11_1a4 | 1 = Yes. 2 = No -9 = Don't know |
| Is this task outsourced to another firm? [SKIP: Go to question c11_2a1] | c11_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 | c11_1b1 | 1 = Yes 2 = No -9 = Don't know |
| Digital or semi-digital design using specialized 2D drawing software | c11_1b2 | 1 = Yes 2 = No -9 = Don't know |
| Computer Aided Design (CAD), 3D design, virtual prototyping | c11_1b3 | 1 = Yes 2 = No -9 = Don't know |
| Other | c11_1b4 | 1 = Yes 2 = No -9 = Don't know |

| | | |
|---|---------------------------|--|
| Question: What is the most used design drawing process by this establishment? | Variable c11_1c | Answer 1 = Manual design and hand drawing |
|---|---------------------------|--|

| | | |
|--|--|--|
| [CONDITION: Ask only if the answer is YES for more than one option among c11_1b variables] | | 2 = Digital or semi-digital design using specialized 2D drawing software 3 = Computer Aided Design (CAD), 3D design, virtual prototyping -9 = Don't know |
|--|--|--|

| 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 c11_1b2=1 or c11_1b3=1] | c11_1d | (Number of years) |

C11.2 Cutting

| Question | Variable | Answer |
|---|----------------|---|
| Does this establishment handle cutting process in house? [SKIP: If c11_2a1=1 go to question c11_2b1] | c11_2a1 | 1 = Yes. 2 = No -7 = Not applicable |
| Is this task outsourced another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c11_2a2=1 go to question c11_2b1] | c11_2a2 | 1 = Yes 2 = No -9 = Don't know |
| Is this task outsourced to another firm? [SKIP: Go to question c11_3a1] | c11_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 | c11_2b1 | 1 = Yes 2 = No | -9 = Don't know |
| Cutting machine manually operated | c11_2b2 | 1 = Yes 2 = No | -9 = Don't know |
| Semi-Automatic cutting machine (straight knife, round knife, die cutting machine) | c11_2b3 | 1 = Yes 2 = No | -9 = Don't know |
| Automatic or Computerized cutting machine (no Laser: water jet, knife, other) | c11_2b4 | 1 = Yes 2 = No | -9 = Don't know |
| Automatic/Computerized cutting machine (Laser) | c11_2b5 | 1 = Yes 2 = No | -9 = Don't know |
| Other | c11_2b6 | 1 = Yes 2 = No | -9 = Don't know |

| | | |
|--|---------------------------|---|
| Question: What is the most used cutting method in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c11_2b variables] | Variable c11_2c | Answer 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 c11_2b4=1 or c11_2b5=1] | c11_2d | (Number of years) |

C11.3 Sewing and Joining Parts

| Question | Variable | Answer |
|--|----------------|---|
| Does this establishment handle sewing process in house? [SKIP: If c11_3a1=1 go to question c11_3b1] | c11_3a1 | 1 = Yes 2 = No -7 = Not applicable |
| Is this task outsourced to another unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c11_3a2=1 go to question c11_3b1] | c11_3a2 | 1 = Yes. 2 = No -9 = Don't know |
| Is this task outsourced to another firm? [SKIP: Go to question c11_4a1] | c11_3a3 | 1 = Yes 2 = No -9 = Don't know -7 = Not applicable |

| Question: What sewing method is used by this establishment? | Variable | Answer | |
|---|----------------|-------------------|-----------------|
| Manually sewing | c11_3b1 | 1 = Yes 2 = No | -9 = Don't know |
| Machine sewing manually operated | c11_3b2 | 1 = Yes 2 = No | -9 = Don't know |
| Semi-automated sewing machines | c11_3b3 | 1 = Yes 2 = No | -9 = Don't know |
| Automated sewing machines | c11_3b4 | 1 = Yes 2 = No | -9 = Don't know |
| 3D Knitting | c11_3b5 | 1 = Yes 2 = No | -9 = Don't know |

| | | | |
|------------------------------|----------------|-------------------|-----------------|
| Other (non-sewing/ seamless) | c11_3b6 | 1 = Yes 2 = No | -9 = Don't know |
|------------------------------|----------------|-------------------|-----------------|

| | | |
|--|---------------------------|---|
| Question: What is the most used sewing method in this facility? [CONDITION: Ask only if the answer is YES for more than one option among c11_3b variables] | Variable c11_3c | Answer 1 = Manually sewing 2 = Machine sewing manually operated 3 = Semi-automated sewing machines 4 = Automated sewing machines 5 = 3D Knitting machines 3D 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 c11_3b3=1 or c11_3b4=1 or c11_3b5=1] | c11_3d | (Number of years) |

C11.4 Assembly – Finishing

| Question | Variable | Answer |
|--|----------------|---|
| Does this establishment handle assembly and finishing process in house? [SKIP: If c11_4a1=1 go to question c11_4b1] | c11_4a1 | 1 = Yes. 2 = No -7 = Not applicable |
| Is this task outsourced another to unit of the same firm? [CONDITION: Only for multi-establishment firms (s4=1)] [SKIP: If c11_4a2=1 go to question c11_4b1] | c11_4a2 | 1 = Yes. 2 = No -9 = Don't know |
| Is this task outsourced to another firm? [SKIP: Go to question D1] | c11_4a3 | 1 = Yes 2 = No -9 = Don't know -7 = Not applicable |

| Question: What assembly and finishing method is used by this establishment? | Variable | Answer | |
|--|----------------|-------------------|-----------------|
| Manual one station-based finishing and assembly method | c11_4b1 | 1 = Yes 2 = No | -9 = Don't know |
| Conveyor based finishing and assembly method (Static/semi-automated conveyor system) | c11_4b2 | 1 = Yes 2 = No | -9 = Don't know |
| Conveyor based finishing and assembly method (Dynamic/automated conveyor system) | c11_4b3 | 1 = Yes 2 = No | -9 = Don't know |
| Injection machine & finishing line- DIP | c11_4b4 | 1 = Yes 2 = No | -9 = Don't know |
| 3D printing / assembly | c11_4b5 | 1 = Yes 2 = No | -9 = Don't know |

| | | | |
|-------|----------------|-------------------|-----------------|
| Other | c11_4b6 | 1 = Yes 2 = No | -9 = Don't know |
|-------|----------------|-------------------|-----------------|

| | | |
|---|--------------------------------------|---|
| <p>Question: What is the most used assembly and finishing method in this facility?</p> <p>[CONDITION: Ask only if the answer is YES for more than one option among c11_4b variables]</p> | <p>Variable</p> <p>c11_4c</p> | <p>Answer</p> <p>1 = Manual one station-based finishing and assembly method</p> <p>2 = Conveyor based finishing and assembly method (Static/semi-automated conveyor system)</p> <p>3 = Conveyor based finishing and assembly method (Dynamic/automated conveyor system)</p> <p>4 = Injection machine & finishing line- DIP (industry 3.0 fully or partially)</p> <p>5 = 3D printing / assembly 3D</p> <p>6 = Other</p> <p>-9 = Don't know</p> |
|---|--------------------------------------|---|

| Question | Variable | Answer |
|---|---------------|-------------------|
| <p>For how many years has this establishment been using dynamic/automated conveyor-based finishing and assembly method, injection machine & finishing line, or 3D/printing/assembly?</p> <p>[CONDITION: ask this question only if c11_4b3=1 or c11_4b4=1 or c11_4b5=1]</p> | c11_4d | (Number of years) |