

ProdUseLocations_CWP-UGA January 2023

A.1 Enumerator name? _____

Can be initials.

What district is this business/productive use location in?

What parish is this business/productive use location in?

A.2 Record the GPS coordinates at this site/business or productive use point.

Stand near the location with mechanical / productive use equipment.

latitude (x.y °) _____ longitude (x.y °) _____

altitude (m) _____ accuracy (m) _____

A.3 Choose the option that best describes the size of this business/productive use location. Take your best guess. You don't need to measure or get the dimensions exactly.

☐ Very small (booth, kiosk, stall – 2x2m or less)

☐ Small (2x2m up to 5x5m)

☐ Medium (5x5m up to 10x10m)

☐ Large (10x10m up to 20x20m)

☐ Very large (20x20m or larger)

B.0 Is there a utility connection to this productive use location?

This can be from a main national grid such as Umeme, rural grid or mini-grid run by a utility. (Yes/No)

B.1 Is there a utility wire within 100m of this business/location?

This can be from a main national grid such as UMEME, rural grid or mini-grid run by a utility. Can be MV or LV. (Yes/No)

B.2 Select the type of utility providing the power

☐ BECS (Bundibugyo Energy Cooperative Society)

☐ KIL (Kilembe Investments Ltd)

☐ KRECS (Kyegegwa Rural Electricity Cooperative Society)

☐ PACMECS (Pader-Abim Community Multipurpose Electric Society)

☐ UEDCL (Uganda Electricity Distribution Company Limited)

☐ UMEME (main national utility)

☐ WENRECo (West Nile Rural Electrification Company)

☐ A rural electric grid utility not listed

☐ A local mini-grid run by a utility not otherwise listed

- ☐ Another type of electric utility
- ☐ Don't know

B.2a Name / describe the other utility _____

B.3b Is this business/location open or closed?

- ☐ Open
- ☐ Closed
- ☐ Other

B.3c Describe other _____

B.5 What type of respondent provides the information for this business/site?

- ☐ Owner/proprietor
- ☐ Worker (including family member(s))
- ☐ Customer
- ☐ Bystander/Villager
- ☐ Enumerator (for this project)
- ☐ Other

B.6 Is this productive use location in a market center?

This is intended for the respondent to answer, and it is clearly subjective. (Yes/No)

B.7 Select the type of electric power provided to this business/location

- ☐ Single phase
- ☐ Three phase
- ☐ Don't know

B.8 Are ANY of the productive use devices used in this business/location powered by three phase electricity? (Yes/No/Don't Know)

U.1 Select ALL types of productive uses that occur here.

- ☐ water pumping (for reasons related to business/income generation)
- ☐ cold storage for animal products (meat, poultry, dairy, etc.) or crops
- ☐ agro-processing: grinding/milling into flour/meal/powder
- ☐ agro-processing: threshing/dehusking/hulling
- ☐ agro-processing: grating /peeling/chipping
- ☐ agro-processing: pressing paste/oil/sugarcane
- ☐ agro-processing: drying/roasting

- ☐ agro-processing: sorting/washing
- ☐ feed preparation (incl. mixing/heating/pelleting)
- ☐ other productive use of energy
- ☐ don't know
- ☐ none

U.2 Describe the other productive use of energy _____

U.3 Select ALL “lighter” energy uses used at this business/site (uses *other than* the productive uses)

- ☐ Lighting
- ☐ Fan
- ☐ Air Conditioning
- ☐ Refrigeration (typically for sale, as opposed to collection for animal products)
- ☐ Television/Video
- ☐ Audio/Loudspeaker/Music
- ☐ Phone charging
- ☐ Battery charging (larger than phones, usually car batteries)
- ☐ Welding
- ☐ Carpentry with power tools
- ☐ Mechanical repair with electric/power tools
- ☐ Electric repair with electric/power tools
- ☐ Hair dryer
- ☐ Small appliances for hair (clipper/trimmers)
- ☐ Small appliances for cooking/restaurant (blender, food processor)
- ☐ Tailoring tools/sewing machine
- ☐ Office equipment (photocopier, printer, computer, etc.)
- ☐ Don't know
- ☐ None
- ☐ Other

U.4 Describe the other “lighter” energy use used at this business/site (*other than* the productive uses) _____

C.1 Select ALL crops that are processed in this way (grinding/milling) here at this site / business. Make sure the crop matches the processing type.

- ☐ Don't know / cannot determine
- ☐ Any tree fruits (exclude banana/plantain)
- ☐ Any tree nuts
- ☐ Avocado
- ☐ Banana / Plantain

- ☐ Beans
- ☐ Cabbage
- ☐ Cassava
- ☐ Chickpea
- ☐ Coffee
- ☐ Cotton
- ☐ Cowpea / Pigeon pea / Greengram
- ☐ Eggplant / Entula
- ☐ Ginger
- ☐ Green Peas
- ☐ Ground nut
- ☐ Leafy Green (sukuma wiki, alayo, boo, gobe, malakwan, etc.)
- ☐ Maize
- ☐ Millet
- ☐ Okra / Otigo / Tindora
- ☐ Onions
- ☐ Passion Fruit
- ☐ Peppers (green, sweet, etc.)
- ☐ Pineapple
- ☐ Potatoes (Irish, Sweet, Others)
- ☐ Rice
- ☐ Root vegetables (carrots, etc.)
- ☐ Sorghum
- ☐ Soybean / Soya
- ☐ Sugarcane
- ☐ Sunflower or Sim-sim / sesame
- ☐ Taro / "yams" (in Uganda)
- ☐ Tea
- ☐ Tef
- ☐ Tomatoes
- ☐ Watermelon (or other melons)
- ☐ Wheat / Barley
- ☐ No crop / No evidence of crop
- ☐ Other crop

C.2 Describe the other crop. _____

C.3 How many grinding/milling machines are operated here? _____
Count only machines that have operated in the last 12 months.

C.4 How is the PRIMARY (grinding/milling) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

C.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

C.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

C.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

C.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

C.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

C.4d Please take a photo of the plate with rating for the PRIMARY (grinding/milling) machine. Can skip if not possible to access/view.

C.4e Please take a photo of the PRIMARY (grinding/milling) machine. Take a photo of the whole machine if possible. If no photo of machine is possible at all then take photo of ground.

C.4f In what months is the PRIMARY grinding/milling machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

- ☐ January
- ☐ February
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ August
- ☐ September
- ☐ October
- ☐ November
- ☐ December
- ☐ Don't know
- ☐ None

C.4g In these months (heavy use), how many hours is the PRIMARY grinding/milling machine used per day? If respondent is uncertain, ask for 3 months _____

C.4h In these months (heavy use), how many kg are processed manually with the PRIMARY grinding/milling machine per day? _____

C.4i In what months is the PRIMARY grinding/milling machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

C.4j In these months (light use), how many hours is the PRIMARY grinding milling machine used per day? If respondent is uncertain, ask for 3 months. _____

C.4k In these months (light use), how many kg are processed manually with the PRIMARY grinding/milling machine per day? If respondent is uncertain, ask for 3 months _____

C.5 How is the SECOND (grinding/milling) machine or activity powered?
The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

C.5a What is capacity/rating for the SECOND machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

C.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

C.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way

[] Not applicable/none

C.5d Please take a photo of the plate with rating for the SECOND (grinding/milling) machine. Can skip if not possible to access/view.

C.5e Please take a photo of the SECOND (grinding/milling) machine. Take a photo of the whole machine if possible. If no photo of machine is possible at all then take photo of ground.

C.5f In what months is the SECOND grinding/milling machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

C.5g In these months (heavy use), how many hours is the SECOND grinding/milling machine used per day? If respondent is uncertain, ask for 3 months _____

C.5h In these months (heavy use), how many kg are processed manually with the SECOND grinding/milling machine per day? _____

C.5i In what months is the SECOND grinding/milling machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

C.5j In these months (light use), how many hours is the SECOND grinding milling machine used per day? If respondent is uncertain, ask for 3 months. _____

C.5k In these months (light use), how many kg are processed manually with the SECOND grinding/milling machine per day? If respondent is uncertain, ask for 3 months _____

D.1 Select ALL crops that are processed in this way (threshing/dehusking/hulling) here at this site / business.

[] Don't know / cannot determine

[] Any tree fruits (exclude banana/plantain)

...(rest of crop list from C.1)

Describe the other crop. _____

D.2 How many threshing/dehusking/hulling machines are operated here? _____
Count only machines that have operated in the last 12 months.

D.3 How is the PRIMARY (threshing/dehusking/hulling) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

D.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

D.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

D.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

D.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

D.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

D.4d Please take a photo of the plate with rating for the PRIMARY (threshing/dehusking/hulling/pulping) machine. Can skip if not possible to access/view.

D.4e Please take a photo of the PRIMARY (threshing/dehusking/hulling/pulping) machine. Take a photo of the whole machine if possible. If no photo of machine is possible at all then take photo of ground.

D.4f In what months is the PRIMARY threshing/dehusking/hulling/pulping machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

D.4g In these months (heavy use), how many hours is the PRIMARY threshing/dehusking/hulling/pulping machine used per day? If respondent is uncertain, ask for 3 months _____

D.4h In these months (heavy use), how many kg are processed manually with the PRIMARY threshing/dehusking/hulling/pulping machine per day? _____

D.4i In what months is the PRIMARY threshing/dehusking/hulling/pulping machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

D.4j In these months (light use), how many hours is the PRIMARY threshing/dehusking/hulling/pulping machine used per day? If respondent is uncertain, ask for 3 months. _____

D.4k In these months (light use), how many kg are processed manually with the PRIMARY threshing/dehusking/hulling/pulping machine per day? If respondent is uncertain, ask for 3 months _____

D.5 How is the SECOND (threshing/dehusking/hulling/pulping) machine or activity powered?

The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

D.5a What is capacity/rating for the SECOND machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

D.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

D.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

D.5d Please take a photo of the plate with rating for the SECOND (threshing/dehusking/hulling/pulping) machine. Can skip if not possible to access/view.

D.5e Please take a photo of the SECOND (threshing/dehusking/hulling/pulping) machine. Take a photo of the whole machine if possible. If no photo of machine is possible at all then take photo of ground.

D.5f In what months is the SECOND threshing/dehusking/hulling/pulping machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

D.5g In these months (heavy use), how many hours is the SECOND threshing/dehusking/hulling/pulping machine used per day? If respondent is uncertain, ask for 3 months _____

D.5h In these months (heavy use), how many kg are processed manually with the SECOND threshing/dehusking/hulling/pulping machine per day? _____

D.5i In what months is the SECOND threshing/dehusking/hulling/pulping machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

D.5j In these months (light use), how many hours is the SECOND threshing/dehusking/hulling/pulping machine used per day? If respondent is uncertain, ask for 3 months. _____

D.5k In these months (light use), how many kg are processed manually with the SECOND threshing/dehusking/hulling/pulping machine per day? If respondent is uncertain, ask for 3 months _____

E.1 Select ALL crops that are processed in this way (grating /peeling/chipping) here at this site / business.

☐ Don't know / cannot determine

☐ Any tree fruits (exclude banana/plantain)

...(rest of crop list from C.1)

E.2 Describe the other crop. _____

E.3 How many grating /peeling/chipping machines are operated here? _____
Count only machines that have operated in the last 12 months.

E.4 How is the PRIMARY (grating /peeling/chipping) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

E.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

E.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

E.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

E.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

E.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

E.4d Please take a photo of the plate with rating for the PRIMARY (grating /peeling/chipping) machine. Can skip if not possible to access/view.

E.4e Please take a photo of the PRIMARY (grating /peeling/chipping) machine. Take a photo of the whole machine if possible. If no photo of machine is possible at all then take photo of ground.

E.4f In what months is the PRIMARY grating /peeling/chipping machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

E.4g In these months (heavy use), how many hours is the PRIMARY grating /peeling/chipping machine used per day? If respondent is uncertain, ask for 3 months

E.4h In these months (heavy use), how many kg are processed manually with the PRIMARY grating /peeling/chipping machine per day? _____

E.4i In what months is the PRIMARY grating /peeling/chipping machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

E.4j In these months (light use), how many hours is the PRIMARY grating /peeling/chipping machine used per day? If respondent is uncertain, ask for 3 months.

E.4k In these months (light use), how many kg are processed manually with the PRIMARY grating /peeling/chipping machine per day? If respondent is uncertain, ask for 3 months _____

E.5 How is the SECOND (grating /peeling/chipping) machine or activity powered?
The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

E.5a What is capacity/rating for the SECOND machine?
Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

E.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

E.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

E.5d Please take a photo of the plate with rating for the SECOND (grating /peeling/chipping) machine. Can skip if not possible to access/view.

E.5e Please take a photo of the SECOND (grating /peeling/chipping) machine. Take a photo of the whole machine if possible. If no photo of machine is possible at all then take photo of ground.

E.5f In what months is the SECOND grating /peeling/chipping machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

E.5g In these months (heavy use), how many hours is the SECOND grating /peeling/chipping machine used per day? If respondent is uncertain, ask for 3 months

E.5h In these months (heavy use), how many kg are processed manually with the SECOND grating /peeling/chipping machine per day? _____

E.5i In what months is the SECOND grating /peeling/chipping machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

E.5j In these months (light use), how many hours is the SECOND grating /peeling/chipping machine used per day? If respondent is uncertain, ask for 3 months.

E.5k In these months (light use), how many kg are processed manually with the SECOND grating /peeling/chipping machine per day? If respondent is uncertain, ask for 3 months _____

F.1 Select ALL animal products that are taken at this site / business and kept in cold storage.

Ex. meat, milk and other dairy, eggs, fish, etc.

[] Milk

[] Eggs

[] Meat (from cattle, goats, sheep, pigs)

- ☐ Poultry (chicken, etc.)
- ☐ Fish
- ☐ Other animal product

F.2 Describe the other animal product. _____

F.6 Select ALL crops that are taken at this site/business and kept in cold storage.

(...crops list from **C.1**)

F.7 Describe the other crop _____

F.3 How many cold storage machines are operated here? _____
Count only machines that have operated in the last 12 months.

F.4 How is the PRIMARY (cold storage) machine or activity PRIMARILY powered?
Consider the power source used most often. If you use two power sources equally, answer for the one you prefer to use.

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

F.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment

- ☐ Other
- ☐ Don't know

F.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

F.4x What size is the PRIMARY (cold storage) machine?

- ☐ Small (1x1 m or smaller)
- ☐ Medium (one dimension is ~2m or larger)
- ☐ Large (two dimensions are 2m or larger)
- ☐ Very large (all dimensions are greater than 2m)

F.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

F.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

F.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

F.4d Please take a photo of the plate with rating for the PRIMARY (cold storage) machine. Can skip if not possible to access/view.

F.4e Please take a photo of the PRIMARY (cold storage) machine. Take a photo of the whole machine if possible.

F.4f In what months is the PRIMARY cold storage machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

F.4g In these months (heavy use), how many hours is the PRIMARY cold storage machine used per day? If respondent is uncertain, ask for 3 months _____

F.4h In what months is the PRIMARY cold storage machine used LIGHTLY? (months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

F.4i In these months (light use), how many hours is the PRIMARY cold storage machine used per day? If respondent is uncertain, ask for 3 months. _____

F.5 How is the SECOND (cold storage) machine or activity powered?
The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

F.5x What size is the SECOND (cold storage) machine?

- ☐ Small (1x1 m or smaller)
- ☐ Medium (one dimension is ~2m or larger)
- ☐ Large (two dimensions are 2m or larger)
- ☐ Very large (all dimensions are greater than 2m)

F.5a What is capacity/rating for the SECOND machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

F.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

F.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

F.5d Please take a photo of the plate with rating for the SECOND (cold storage) machine. Can skip if not possible to access/view.

F.5e Please take a photo of the SECOND (cold storage) machine. Take a photo of the whole machine if possible.

F.5f In what months is the SECOND cold storage machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

F.5g In these months (heavy use), how many hours is the SECOND cold storage machine used per day? If respondent is uncertain, ask for 3 months _____

F.5h In what months is the SECOND cold storage machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

F.5i In these months (light use), how many hours is the SECOND cold storage machine used per day? If respondent is uncertain, ask for 3 months. _____

G.1 Select ALL crops that are processed in this way (pressing paste/oil/sugarcane) here at this site / business.

- ☐ Don't know / cannot determine
- ☐ Any tree fruits (exclude banana/plantain)
- ...(rest of crop list from C.1)

G.2 Describe the other crop. _____

G.3 How many pressing paste/oil/sugarcane machines are operated here? _____
Count only machines that have operated in the last 12 months.

G.4 How is the PRIMARY (pressing paste/oil/sugarcane) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine (direct drive or genset)
- ☐ electricity grid (including mini-grid)
- ☐ solar or battery system
- ☐ None
- ☐ Don't know

G.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

G.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

G.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

G.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

G.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

G.4d Please take a photo of the plate with rating for the PRIMARY (pressing paste/oil/sugarcane) machine. Can skip if not possible to access/view.

G.4e Please take a photo of the PRIMARY (pressing paste/oil/sugarcane) machine. Take a photo of the whole machine if possible.

G.4f In what months is the PRIMARY pressing paste/oil/sugarcane machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

G.4g In these months (heavy use), how many hours is the PRIMARY pressing paste/oil/sugarcane machine used per day? If respondent is uncertain, ask for 3 months

G.4h In these months (heavy use), how many kg are processed manually with the PRIMARY pressing paste/oil/sugarcane machine per day? If respondent is uncertain, ask for 3 months.

G.4i In what months is the PRIMARY pressing paste/oil/sugarcane machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

G.4j In these months (light use), how many hours is the PRIMARY pressing paste/oil/sugarcane machine used per day? If respondent is uncertain, ask for 3 months.

G.4k In these months (light use), how many kg are processed manually with the PRIMARY pressing paste/oil/sugarcane machine per day? If respondent is uncertain, ask for 3 months. _____

G.5 How is the SECOND (pressing paste/oil/sugarcane) machine or activity powered? The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

G.5a What is capacity/rating for the SECOND machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage))_____

G.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

G.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator

- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

G.5d Please take a photo of the plate with rating for the SECOND (pressing paste/oil/sugarcane) machine. Can skip if not possible to access/view.

G.5e Please take a photo of the SECOND (pressing paste/oil/sugarcane) machine. Take a photo of the whole machine if possible.

G.5f In what months is the SECOND pressing paste/oil/sugarcane machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

G.5g In these months (heavy use), how many hours is the SECOND pressing paste/oil/sugarcane machine used per day? If respondent is uncertain, ask for 3 months.

G.5h In these months (heavy use), how many kg are processed manually with the SECOND pressing paste/oil/sugarcane machine per day? If respondent is uncertain, ask for 3 months. _____

G.5i In what months is the SECOND pressing paste/oil/sugarcane machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

G.5j In these months (light use), how many hours is the SECOND pressing paste/oil/sugarcane machine used per day? If respondent is uncertain, ask for 3 months.

G.5k In these months (light use), how many kg are processed manually with the SECOND pressing paste/oil/sugarcane machine per day? If respondent is uncertain, ask for 3 months. _____

H.1 Select ALL crops that are processed in this way (drying/roasting) here at this site / business.

- ☐ Don't know / cannot determine
- ☐ Any tree fruits (exclude banana/plantain)
- ...(rest of crop list from C.1)

H.2 Describe the other crop. _____

H.3 How many drying/roasting machines are operated here? _____
Count only machines that have operated in the last 12 months.

H.4 How is the PRIMARY (drying/roasting) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ none
- ☐ don't know

H.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

H.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

H.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

H.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

H.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

H.4d Please take a photo of the plate with rating for the PRIMARY (drying/roasting) machine. Can skip if not possible to access/view.

H.4e Please take a photo of the PRIMARY (drying/roasting) machine. Take a photo of the whole machine if possible.

H.4f In what months is the PRIMARY drying/roasting machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

H.4g In these months (heavy use), how many hours is the PRIMARY drying/roasting machine used per day? If respondent is uncertain, ask for 3 months _____

H.4h In these months (heavy use), how many kg are processed manually with the PRIMARY drying/roasting machine per day? If respondent is uncertain, ask for 3 months.

H.4i In what months is the PRIMARY drying/roasting machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

H.4j In these months (light use), how many hours is the PRIMARY drying/roasting machine used per day? If respondent is uncertain, ask for 3 months. _____

H.4k In these months (light use), how many kg are processed manually with the PRIMARY drying/roasting machine per day? If respondent is uncertain, ask for 3 months. _____

H.5 How is the SECOND (drying/roasting) machine or activity powered?
The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

H.5a What is capacity/rating for the SECOND machine?
Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

H.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

H.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know

- ☐ Determined some other way
☐ Not applicable/none

H.5d Please take a photo of the plate with rating for the SECOND (drying/roasting) machine. Can skip if not possible to access/view.

H.5e Please take a photo of the SECOND (drying/roasting) machine. Take a photo of the whole machine if possible.

H.5f In what months is the SECOND drying/roasting machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

H.5g In these months (heavy use), how many hours is the SECOND drying/roasting machine used per day? If respondent is uncertain, ask for 3 months. _____

H.5h In these months (heavy use), how many kg are processed manually with the SECOND drying/roasting machine per day? If respondent is uncertain, ask for 3 months.

H.5i In what months is the SECOND drying/roasting machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

H.5j In these months (light use), how many hours is the SECOND drying/roasting machine used per day? If respondent is uncertain, ask for 3 months. _____

H.5k In these months (light use), how many kg are processed manually with the SECOND drying/roasting machine per day? If respondent is uncertain, ask for 3 months.

I.1 Select ALL crops that are processed in this way (sorting/cleaning/washing) here at this site / business.

- ☐ Don't know / cannot determine
☐ Any tree fruits (exclude banana/plantain)
...(rest of crop list from C.1)

I.2 Describe the other crop. _____

I.3 How many sorting/cleaning/washing machines are operated here? _____
Count only machines that have operated in the last 12 months.

I.4 How is the PRIMARY (sorting/cleaning/washing) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ none
- ☐ don't know

I.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

I.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

I.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

I.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

I.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

I.4d Please take a photo of the plate with rating for the PRIMARY (sorting/cleaning/washing) machine. Can skip if not possible to access/view.

I.4e Please take a photo of the PRIMARY (sorting/cleaning/washing) machine. Take a photo of the whole machine if possible.

I.4f In what months is the PRIMARY sorting/cleaning/washing machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

I.4g In these months (heavy use), how many hours is the PRIMARY sorting/cleaning/washing machine used per day? If respondent is uncertain, ask for 3 months _____

I.4h In these months (heavy use), how many kg are processed manually with the PRIMARY sorting/cleaning/washing machine per day? If respondent is uncertain, ask for 3 months.

I.4i In what months is the PRIMARY sorting/cleaning/washing machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

I.4j In these months (light use), how many hours is the PRIMARY sorting/cleaning/washing machine used per day? If respondent is uncertain, ask for 3 months. _____

I.4k In these months (light use), how many kg are processed manually with the PRIMARY sorting/cleaning/washing machine per day? If respondent is uncertain, ask for 3 months. _____

I.5 How is the SECOND (sorting/cleaning/washing) machine or activity powered?
The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

I.5a What is capacity/rating for the SECOND machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

I.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

I.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

I.5d Please take a photo of the plate with rating for the SECOND (sorting/cleaning/washing) machine. Can skip if not possible to access/view.

I.5e Please take a photo of the SECOND (sorting/cleaning/washing) machine. Take a photo of the whole machine if possible.

I.5f In what months is the SECOND sorting/cleaning/washing machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

I.5g In these months (heavy use), how many hours is the SECOND sorting/cleaning/washing machine used per day? If respondent is uncertain, ask for 3 months. _____

I.5h In these months (heavy use), how many kg are processed manually with the SECOND sorting/cleaning/washing machine per day? If respondent is uncertain, ask for 3 months. _____

I.5i In what months is the SECOND sorting/cleaning/washing machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

I.5j In these months (light use), how many hours is the SECOND sorting/cleaning/washing machine used per day? If respondent is uncertain, ask for 3 months. _____

I.5k In these months (light use), how many kg are processed manually with the SECOND sorting/cleaning/washing machine per day? If respondent is uncertain, ask for 3 months.

J.0 Select ALL uses of water pumping at this site/business

- ☐ Water pumping for drinking water (include drinking water for sale)
- ☐ Water pumping for agriculture/crops/irrigation
- ☐ Water pumping for animals/livestock
- ☐ Water pumping for animal products (including cleaning)
- ☐ Water pumping for other use

J.1 Select ALL crops for which this productive energy use (water pumping) is used here at this site / business.

- ☐ Don't know / cannot determine
- ☐ Any tree fruits (exclude banana/plantain)
- ...(rest of crop list from C.1)

J.2 Describe the other crop _____

J.6 Select ALL animals/livestock for which this productive energy use (water pumping) is used here at this site/business.

- ☐ Cattle/Cows/Oxen
- ☐ Goats/Sheep
- ☐ Pigs
- ☐ Camels
- ☐ Donkeys
- ☐ Chicken/Poultry
- ☐ Fish
- ☐ Rabbits
- ☐ Other livestock

J.7 Describe the other animals/livestock _____

J.8 Select ALL animal products for which this productive energy use (water pumping) is used here at this site/business. Ex. meat, milk and other dairy, eggs, fish, etc.

- ☐ Milk
- ☐ Eggs
- ☐ Meat (from cattle, goats, sheep, pigs)
- ☐ Poultry (chicken, etc.)
- ☐ Fish
- ☐ Other animal product

J.9 Describe the other animal product _____

J.10 Describe the other use for pumped/lifted water _____

J.11 What is the primary source of the water?

- ☐ Shallow well, hand-dug well or borehole (depth less than 30 meters)
- ☐ Borehole (depth greater than 30 meters)
- ☐ Harvested water

- ☐ Surface Water (lake, dam, pond, stream, river, spring)
- ☐ Tap/Piped Water
- ☐ Trucked water
- ☐ Other water source (for irrigation – not rainwater)

J.12 From what depth is the water pumped/lifted? An estimate is fine. _____

J.3 How many water pumping machines are operated here?
Count only machines that have operated in the last 12 months. _____

J.4 How is the PRIMARY (water pumping) machine or activity powered?
The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ none
- ☐ don't know

J.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

J.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

J.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage))_____

J.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

J.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

J.4d Please take a photo of the plate with rating for the PRIMARY (water pumping) machine. Can skip if not possible to access/view.

J.4e Please take a photo of the PRIMARY (water pumping) machine. Take a photo of the whole machine if possible.

J.4f In what months is the PRIMARY water pumping machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

J.4g In these months (heavy use), how many hours is the PRIMARY water pumping machine used per day? If respondent is uncertain, ask for 3 months _____

J.4h In these months (heavy use), how many kg are processed manually with the PRIMARY water pumping machine per day? If respondent is uncertain, ask for 3 months.

J.4i In what months is the PRIMARY water pumping machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

J.4j In these months (light use), how many hours is the PRIMARY water pumping machine used per day? If respondent is uncertain, ask for 3 months. _____

J.4k In these months (light use), how many liters are pumped/lifted manually with the PRIMARY water pumping machine per day? If respondent is uncertain, ask for 3 months. _____

J.5 How is the SECOND (water pumping) machine or activity powered?
The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

J.5a What is capacity/rating for the SECOND (water pumping) machine?
Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

J.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

J.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator

- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

J.5d Please take a photo of the plate with rating for the SECOND (water pumping) machine. Can skip if not possible to access/view.

J.5e Please take a photo of the SECOND (water pumping) machine. Take a photo of the whole machine if possible.

J.5f In what months is the SECOND water pumping machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

J.5g In these months (heavy use), how many hours is the SECOND water pumping machine used per day? If respondent is uncertain, ask for 3 months. _____

J.5h In these months (heavy use), how many liters are pumped/lifted manually with the SECOND water pumping machine per day? If respondent is uncertain, ask for 3 months.

J.5i In what months is the SECOND water pumping machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

J.5j In these months (light use), how many hours is the SECOND water pumping machine used per day? If respondent is uncertain, ask for 3 months. _____

J.5k In these months (light use), how many liters are pumped/lifted manually with the SECOND water pumping machine per day? If respondent is uncertain, ask for 3 months.

L.1 Select ALL crops that are processed in this way (feed preparation (incl. mixing/heating/pelleting)) here at this site / business.

- ☐ Don't know / cannot determine
- ☐ Any tree fruits (exclude banana/plantain)
- ...(rest of crop list from C.1)

L.2 Describe the other crop _____

L.3 How many machines (feed preparation (incl. mixing/heating/pelleting)) are operated here?

Count only machines that have operated in the last 12 months. _____

L.4 How is the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine or activity powered?

The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ none
- ☐ don't know

L.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

L.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

L.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

L.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

L.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

L.4d Please take a photo of the plate with rating for the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine. Can skip if not possible to access/view.

L.4e Please take a photo of the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine. Take a photo of the whole machine if possible.

L.4f In what months is the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

L.4g In these months (heavy use), how many hours is the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine used per day? If respondent is uncertain, ask for 3 months _____

L.4h In these months (heavy use), how many kg are processed manually with the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine per day? If respondent is uncertain, ask for 3 months.

L.4i In what months is the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

L.4j In these months (light use), how many hours is the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine used per day? If respondent is uncertain, ask for 3 months. _____

L.4k In these months (light use), how many kg are processed manually with the PRIMARY (feed preparation (incl. mixing/heating/pelleting)) machine per day? If respondent is uncertain, ask for 3 months. _____

L.5 How is the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine or activity powered?

The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

L.5a What is capacity/rating for the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

L.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

L.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

L.5d Please take a photo of the plate with rating for the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine. Can skip if not possible to access/view.

L.5e Please take a photo of the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine. Take a photo of the whole machine if possible.

L.5f In what months is the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

L.5g In these months (heavy use), how many hours is the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine used per day? If respondent is uncertain, ask for 3 months. _____

L.5h In these months (heavy use), how many kg are processed manually with the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine per day? If respondent is uncertain, ask for 3 months. _____

L.5i In what months is the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

L.5j In these months (light use), how many hours is the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine used per day? If respondent is uncertain, ask for 3 months. _____

L.5k In these months (light use), how many kg are processed manually with the SECOND (feed preparation (incl. mixing/heating/pelleting)) machine per day? If respondent is uncertain, ask for 3 months. _____

K.1 Select ALL crops that are processed in this way (other productive use of energy) here

at this site / business.

- ☐ Don't know / cannot determine
- ☐ Any tree fruits (exclude banana/plantain)
- ...(rest of crop list)

K.2 Describe the other crop. _____

K.3 How many other productive use of energy machines are operated here? _____
Count only machines that have operated in the last 12 months.

K.4 How is the PRIMARY (other productive use of energy) machine or activity powered?

The one that is used most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ none
- ☐ don't know

K.4z What is the main reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine? Choose the best answer.

- ☐ There is no transformer & local low voltage network
- ☐ Connection costs are too high (including wiring, fee, etc.)
- ☐ Ongoing cost of power/tariff is too high
- ☐ Cost of electrical PUE equipment is too high
- ☐ Power supply is too unreliable
- ☐ High cost or difficulty of repair/maintenance of electrical equipment
- ☐ Unable to obtain/can't afford three phase connection
- ☐ Unfamiliarity/lack of awareness that electricity may have advantages
- ☐ Lack of confidence/distrust in local power distributor/utility
- ☐ Lack of confidence/distrust/difficulty with other person who must be paid (ex. landlord)
- ☐ Power was disconnected/Account was closed
- ☐ Too little use to justify effort/cost to switch
- ☐ Satisfied with current equipment
- ☐ Other
- ☐ Don't know

K.4o Describe the other reason that you do not use electric power from the grid/mini-grid for this PRIMARY machine. _____

K.4a What is capacity/rating for the PRIMARY machine?

Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage)) _____

K.4b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

K.4c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

K.4d Please take a photo of the plate with rating for the PRIMARY (other productive use of energy) machine. Can skip if not possible to access/view.

K.4e Please take a photo of the PRIMARY (other productive use of energy) machine. Take a photo of the whole machine if possible.

K.4f In what months is the PRIMARY (other productive use of energy) machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

K.4g In these months (heavy use), how many hours is the PRIMARY (other productive use of energy) machine used per day? If respondent is uncertain, ask for 3 months

K.4h In these months (heavy use), how many kg are processed manually with the PRIMARY (other productive use of energy) machine per day? If respondent is uncertain, ask for 3 months.

K.4i In what months is the PRIMARY (other productive use of energy) machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

K.4j In these months (light use), how many hours is the PRIMARY (other productive use of energy) machine used per day? If respondent is uncertain, ask for 3 months.

K.4k In these months (light use), how many kg are processed manually with the PRIMARY (other productive use of energy) machine per day? If respondent is uncertain, ask for 3 months. _____

K.5 How is the SECOND (other productive use of energy) machine or activity powered? The one that is used SECOND most often

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don't know

K.5a What is capacity/rating for the SECOND (other productive use of energy) machine? Please record only the number. The next question asks for the units (you will be able to choose kilowatts (kW), kVA, horsepower (HP), watts (W) or liters (a size measurement used for cold storage))_____

K.5b Select the units for the capacity/rating?

- ☐ kilowatts (kW)
- ☐ kVA
- ☐ horsepower (HP)
- ☐ watts (W)
- ☐ liters (a size measurement often used for cold storage)
- ☐ Don't know/unclear

K.5c How is the capacity determined?

- ☐ Reading (from plate, label, etc.)
- ☐ Estimate by the owner or operator
- ☐ Estimate by the enumerator
- ☐ Don't know
- ☐ Determined some other way
- ☐ Not applicable/none

K.5d Please take a photo of the plate with rating for the SECOND (other productive use of energy) machine. Can skip if not possible to access/view.

K.5e Please take a photo of the SECOND (other productive use of energy) machine. Take a photo of the whole machine if possible.

K.5f In what months is the SECOND (other productive use of energy) machine used HEAVILY? If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

K.5g In these months (heavy use), how many hours is the SECOND (other productive use of energy) machine used per day? If respondent is uncertain, ask for 3 months.

K.5h In these months (heavy use), how many kg are processed manually with the SECOND (other productive use of energy) machine per day? If respondent is uncertain, ask for 3 months. _____

K.5i In what months is the SECOND (other productive use of energy) machine used LIGHTLY? (Months with no use at all should NOT be selected). If respondent is uncertain, ask for 3 months. Months not selected for heavy or light use will be considered no/zero use.

(...month list)

K.5j In these months (light use), how many hours is the SECOND (other productive use of energy) machine used per day? If respondent is uncertain, ask for 3 months.

K.5k In these months (light use), how many kg are processed manually with the SECOND (other productive use of energy) machine per day? If respondent is uncertain, ask for 3 months. _____

BU1. Do you use a “backup” power source that uses fuel (diesel/petrol)?
(Yes/No/Don’t Know)

BU2. What machines/productive uses does this power?

- ☐ water pumping (for reasons related to business/income generation)
- ☐ cold storage for animal products (meat, poultry, dairy, etc.) or crops
- ☐ agro-processing: grinding/milling into flour/meal/powder
- ☐ agro-processing: threshing/dehusking/hulling
- ☐ agro-processing: grating /peeling/chipping
- ☐ agro-processing: pressing paste/oil/sugarcane
- ☐ agro-processing: drying/roasting
- ☐ agro-processing: sorting/washing
- ☐ feed preparation (incl. mixing/heating/pelleting)
- ☐ other productive use of energy
- ☐ don't know
- ☐ none

P.1 Select ALL of the following productive energy use types that you have paid for in the last 12 months. If the respondent pays someone from a genset, include this as “petrol/diesel engine (direct drive or genset or shared genset).”

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)
- ☐ solar or battery system (owned by you)
- ☐ None
- ☐ Don’t know

P.2a Select the months of HEAVY use (with highest costs) of this power type: petrol/diesel engine or generator. Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.2 How much do you pay per month for this power type (petrol/diesel engine or generator) in a typical month of HEAVY use? Consider the past 12 months. Include ALL costs (fuel, maintenance, equipment rental, etc.) _____

P.3a Select the months of LIGHT use (lower costs, but more than zero) of this power type: petrol/diesel engine or generator. (months of LIGHT use). Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.3 How much do you pay per month for this power type (petrol/diesel engine or generator) in a typical month of LIGHT use? Include ALL costs (fuel, maintenance, equipment rental, etc.) _____

P.X0 Would you prefer to have an electric connection and electric machines at your business? (Yes/No/Don't Know)

Please rate the level of challenge for each of the following issues *in months of heavy use*:
3 = large challenge; 2 = medium challenge; 1 = small challenge; 0 = not an issue for you;
999 = Don't know

P.Xa Power from the engine is poor quality (lights flicker; engine needs frequent service or replacement) _____ -

P.Xb Cost of power from the engine is high compared to electric grid connection

P.Xc Wires too far to connect to electricity _____

P.Xd Connection/Wiring/Inspection fees to connect to electricity too high _____

P.Xe Upfront investment in buying electric powered machines is too high to switch to electric power _____

P.Xf Reliability of power supply in the area is too poor to switch to electric power

P.6a Select months of HEAVY use (with highest costs) of this power type: electricity grid (including mini-grid)? Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.6 How much do you pay per month for this power type (electricity grid (including mini-grid)) in a typical month of HEAVY use? Consider the past 12 months.

P.7a Select the months of LIGHT use (lower costs, but more than zero) for this power type: (electricity grid (including mini-grid)). Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.7 How much do you pay per month for this power type (electricity grid (including mini-grid)) in a typical month of LIGHT use? Consider the past 12 months

P.9 Who do you pay for this power type: (electricity grid (including mini-grid))?

- ☐ Utility
- ☐ Landlord
- ☐ The person who shares their power/connection (ex. neighbor)
- ☐ Payment is shared with neighbors
- ☐ Don't know
- ☐ Other

P.9o Describe the other means of payment _____

P.Y0 Do you have a three phase connection? (Yes/No/Don't Know)

P.Y1 Do you want a three phase connection? (Yes/No/Don't Know)

Please rate the level of challenge for each of the following issues *in months of heavy use*:
3 = large challenge; 2 = medium challenge; 1 = small challenge; 0 = not an issue for you;
999 = Don't know

P.Ya Electricity goes off to your business and in the area during heavy use months

P.Yb Electricity goes off for your business if you turn on all the equipment that you would like to use _____

P.Yc Electricity has poor quality (lights flicker; your motors and equipment need more frequent service or replacement) _____

P.Yd Fixed monthly/service fee for electricity is high even when usage is low _____

P.Ye Cost of getting a three phase connection is high _____

P.Yf The quality of wiring from the utility to the equipment used by your business is poor _____

P.10a Select the months of HEAVY use (with highest costs) of this power type: solar or battery system. Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.10 How much do you pay per month for this power type (solar or battery system) in a typical month of HEAVY use? Consider the past 12 months. _____

P.11a Select the months of LIGHT use (lower cost) for this power type: solar or battery system. Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.11 How much do you pay per month for this power type (solar or battery system) in a typical month of LIGHT use? Consider the past 12 months _____

P.14a Select the months of HEAVY use of HIRED manual labor. Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.14 How much do you pay per month for this power type (HIRED manual labor) in a typical month of HEAVY use? Consider the past 12 months. _____

P.15a Select the months of LIGHT use (lower cost) for this power type: HIRED manual labor. Consider the past 12 months. Months not selected for heavy or light use will be considered no/zero use.

(...months list)

P.15 How much do you pay per month for this power type (HIRED manual labor) in a typical month of LIGHT use? Consider the past 12 months _____

Note: The following questions relate to barriers to productive use of energy

R.1 Does this apply to you/your business?: Demand low compared to the investment you made in the business (Yes/No/Don't Know)

R.2 Does this apply to you/your business?: Cost of credit/financing is preventing you from acquiring new equipment. (Various potential reasons: existing equipment is old, too small to meet demand, etc.) (Yes/No/Don't Know)

R.3 Does this apply to you/your business?: The initial or monthly costs of electricity connection are too high. (Yes/No/Don't Know)

R.3b Does this apply to you/your business?: The quality of power is too low (Yes/No/Don't Know)

R.4 Which OTHER new agro-processing business you would like to start if you had enough finances?

- ☐ water pumping (for reasons related to business/income generation)
- ☐ cold storage for animal products (meat, poultry, dairy, etc.) or crops
- ☐ agro-processing: grinding/milling into flour/meal/powder
- ☐ agro-processing: threshing/dehusking/hulling
- ☐ agro-processing: grating /peeling/chipping
- ☐ agro-processing: pressing paste/oil/sugarcane
- ☐ agro-processing: drying/roasting
- ☐ agro-processing: sorting/washing
- ☐ feed preparation (incl. mixing/heating/pelleting)
- ☐ other productive use of energy
- ☐ don't know
- ☐ none

R.4b Describe the one other agro-processing business you would start _____

M.1 Is this site or business a repair shop for mechanical equipment (machinery with engines, motors, compressors or similar) in this market center?

Ex. tractors, pumps, refrigerators, motor vehicles, processing equipment, other engines or motors.

Do NOT include electronics (TV, phones, etc.)

(Yes/No)

M.2 Select any of the following power types USED in this shop.
If more than one, select largest / most prominent.

- ☐ manual
- ☐ petrol/diesel engine or generator (may be shared)
- ☐ electricity grid (including mini-grid or a shared connection)

☐ solar or battery system

☐ none

☐ don't know

If there are any final notes you (the enumerator) wish to share about this survey, please add them here. _____-