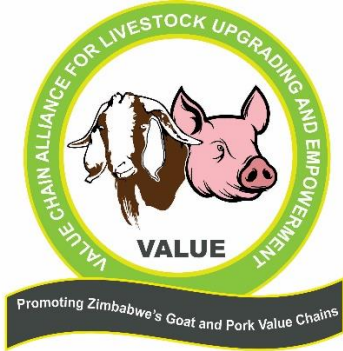




Funded by the European Union



ZAGP VALUE PROJECT PORK VALUE CHAIN BOOKLET ON PIG PRODUCTION STANDARDS



Transforming the Pork Value Chain for the Future

© VALUE Project and The Pig Industry Board - 2020

CONTENTS

1. **Introduction**
2. **E.H 01-Environment and Housing**
 - E.H-1 Accommodation and Moving pigs
 - E.H-2 Ventilation
 - E.H-3 Bedding
 - E.H-4 Cleaning and Hygiene
 - E.H-5 Waste disposal
3. **Code F.W 02 Feed and Water**
4. **Code B.M 03 Breeding Management**
 - B.M-1 Gilt management
 - B.M-2 Boar management
 - B.M-3 Heat detection
 - B.M-4 Mating management-4a Natural Mating
4b Artificial Insemination-Semen Care
AI
 - B.M-5 Managing sows during pregnancy
 - B.M -6 Culling
5. **Code F.M 04- Farrowing Operations**
 - F.M -1 Pre farrowing
 - F.M- 2 Farrowing
 - F.M- 3 Assisting a sow with farrowing problems
 - F.M -4 Use of oxytocin
6. **Code N.B 05 Managing newborn piglets**
 - N.B 1- Colostrum intake
 - N.B 2-Fostering
 - N.B 3- Daily checks on piglets and Identifying disadvantaged piglets
 - N.B 4- Operations done on piglets
7. **Code W.W 06 Weaning and Weaner Management**
8. **Code G.P 07 Growing Pigs**
9. **Code P.H 08 Pig Health**
 - P.H 1 Identification of sick pigs
 - P.H 2 Drug and Drug administration
10. **Code R.R- 09 Pig records and Record Keeping**
11. **Code M.T 10- Marketing and Transporting pigs to market**
12. **Appendix 1- Pig production targets**

STANDARD OPERATING PROCEDURES

Introduction

Standard Operating Procedures (SOPs) is a simple detailed document that provides instructions on how to perform a routine and or tasks following industry guidelines. It gives guidance on how routine tasks, for example, feeding, breeding, drug administration are done in a piggery. The ultimate goal being to achieve the set targets as given in Appendix 1.

SOPs are going to be developed along the pork production chain from housing to marketing. To help place emphasis on why such tasks are carried out, an objective, explaining why the task is done is given for every SOP

It is important to ensure that the SOPs document is accessible, made use of and adhered to closely.

Each task will be given a code, for example, one pertaining to Environment and Housing has been coded EH -01. SOPs pertaining to specific sections, for example the farrowing accommodation can be hung in the respective place so that the employees can make quick checks as and when necessary. Cross cutting SOPs for example on pig health, that applies to all the sections can be hung in the different sections.

SOPs should be updated as changes occur.

Code E. H 01-ENVIRONMENT AND HOUSING

Objective: To reduce incidence of stress and ensure practice of biosecurity measures so as to reduce incidences of diseases by ensuring that pigs are exposed to the right environment during all stages of growth and production. The working environment provided should also be safe for the stockman

E.H 01- 1Accommodation and moving pigs

- All floors, fittings and equipment must be designed in such a way that minimize risk on injury to pigs and stockman.
- Stocking density must allow space for feeding, watering, exercise and lying
- Ensure that there are no items which might injure pigs if ingested
- Check daily if all equipment and housing is in order and if any repairs needed to be reported to the manager and actioned without delay.
- When pigs are mixed there is need to monitor them for aggression and can use odours to reduce aggression.
- To aid movement of sows move them in groups of 2-5 at a time and reduce noise, people and other activity
- Stockman should never turn their back to a boar when moving boars
- When moving piglets by hand they are picked up by holding under the rib cage, over the back or by grabbing a rear leg above the hock and gently placing it in the cart or pen.
- Ensure that the piglet front legs contact the ground before releasing it
- Do not toss up, throw or pick piglets by ear or tail

E.H 01-2 Ventilation

- Ventilation facilities must be checked and adjusted as needed

E.H 01-3 Bedding

- Piglets should have access to bedding
- Bedding should be up to a depth of 10cm to assist piglets in regulating their temperature
- Bedding should be inspected daily and changed as needed
- Deep litter should be replaced at intervals that ensure good hygiene and provide for comfort

E.H 01-4 Cleaning and hygiene

- Occupied pens must be thoroughly cleaned once or twice daily as needed.
- Dry cleaning should be practiced as much as possible where the dung is removed with a shovel and broom.
- Water can be used for cleaning the down slope which is the dunging and watering area
- Use water for cleaning the whole pen when the pen is too dirty
- Equipment used, e.g. wheelbarrows, brooms and shovels must be cleaned and properly stored after use.
- When a batch of pigs is moved, the pens are thoroughly cleaned and disinfected and rested for at least 7 days for farrowing pens and 3 days for the other classes of stock.
- It is important to follow instruction of disinfectant use as stated on the label of the disinfectant of choice.
- Refill footbath at every pen entry point daily

E.H 01-5 Waste Disposal

- Pigs should have a clean dry area to lie on and feed from.
- Solid dung should not be swept along in the drain but separated and piled on the manure heap
- Wash the drains daily
- Dead pigs should not be put together with manure
- Dead pigs should be burnt to prevent diseases
- **Slurry should be properly disposed away from the pens**

Code F.W -02-FEED AND WATER

Objective: To ensure that pigs of different classes get adequate supply of feed and water so as to enhance performance

- Ensure that all feeding and watering equipment design, position and height allow all pigs to access feed and water with minimal effort and using normal posture
- Check all equipment for efficient operation every day to ensure that pigs have access to feed and water.
- Feed should be palatable and free from pests
- A bully must be moved to another pen
- Distribute feed in such a way that it is available to all pigs to minimize bullying
- The body condition of the pigs should not fall below 2

- Clean water must be always available and pigs must be able to access without competition
- Ensure that enough water comes from the nipple drinkers by regularly checking on the flow rate (litters/min), weaners- 0.5, growers/finishers-1, dry sows-1, lactating sow-2

Code B.M 03-BREEDING MANAGEMENT

Objective- To ensure that all aspects of breeding are properly carried out so that high litter sizes are achieved.

Objective - to ensure proper heat detection and mating management which results in high conception rates and litter sizes which are some of the factors that determine productivity in pig business

B.M 03-1 Gilt Management

Objective- To ensure that the gilts are properly managed

- Feed the gilt with 3kg of feed per day until its bred when the feed is reduced to 2kg per day
- Vaccinate against Still Birth, Mummification, Embryonic Death Infertility (SMEDI) on selection and revaccinate at least 2 weeks before breeding
- Check the gilt for signs of heat and skip the first heat
- Gilts should be mated when they are on standing heat and they have attained at least 8 months or are above 120kg

B.M 03 -2 Boar Management

Objective -To manage a boar in such a way that it has a long productive life time.

- House boars individually as they have a tendency of fighting
- House boars close to sows but not with sows
- Feed boars with 2kg of the gestation diet and ensure that water is always available
- Check on the health of the boar daily and report any anomalies promptly
- Ensure that the floor is not slippery
- Keep service records of individual boars
- Do not practice mixed mating without the manager's consent
- Boars below 1 year should work on 1 female per week and boars above 1 year can work on 2 females per week.
- When a boar has rested for more than a month, the first mating it performs should be disregarded.
- Deworm and spray against external parasites twice yearly or when symptoms of the condition are noticed

B.M 03-3 HEAT DETECTION

- Check for signs of heat as specified in the factsheet
- Do not do heat detection with the boar during feeding time
- Use a mature boar for heat detection
- If the sow does not stand still for a boar, separate them quickly.
- If the sow attempts to bite or fight the boar, separate them.
- Take the sow to the boar pen for servicing and not the other way round.

B.M-03-4 MATING MANAGEMENT

B.M03.4-a Natural Mating

- The sow/gilt should be on standing heat and if observed to be on heat in the morning, it should be mated in the late afternoon and if in the afternoon, should be mated the following day in the morning.
- The sow/gilt should be given to the boar 3 times, when its cool, early morning or late afternoon
- The sow should be returned to the pen soon after mating
- Note females which bleed during breeding and give them an antibiotic
- Use a young boar to a young gilt and older boars to sows
- Supervise and record all mating.

B.M 03- 4 b Artificial Insemination

B.M 03-4b 1 Semen Care

- Semen should be properly handled between processing and servicing and high level of hygiene practiced
- Keep semen doses between 16-18°C
- Do not expose semen to direct sunlight
- Ensure there is free air circulation around the container and do not open the container unnecessarily
- Plan semen orders in advance and ensure use within the specified days
- Rotate each semen dose twice daily and before use
- Timing of insemination is critical

B.M 03-4b-2 Mating using A.I

- The sow/gilt should be in standing heat as for natural mating thus heat detection is critical
- Breed gilt and sows 12 hours and 18-24 hours respectively after standing heat and 12 hours after the first insemination
- Lubricate the catheter with a small amount of special A.I jelly
- Lubricant not necessary with foam catheters
- Keep boar in front of sow/gilt to maximize uterine contractions
- Wipe vulva with paper towel to remove dirt
- Push catheter out of packaging
- Gently separate the vulva lips using thumbs and forefingers
- Gently push catheter at an upward 30-45°C through the vagina into the cervix
- Slightly try to withdraw the catheter to check if its locked.
- Suspend semen in the dose by gently shaking the container, cut tip of satchet and insert the catheter
- Allow semen to flow from the container to the sow, apply slight pressure if using a bottle

- Do not force the semen in
- Stimulate the sow by rubbing on its flank
- Record any backflow on the card
- Use a new disposable catheter for each mating
- Keep the sow quiet for about 30 minutes and leave the catheter connected to the sow for 5-10 minutes

B.M 03-5 Management of the sow during pregnancy

- Reduce the feed amount to 2kg of feed per day and ensure that water is available all the time
- Avoid stressing the sow by moving it unnecessarily.
- Check for returns by checking for the signs of heat, 18-24 days after mating
- Five weeks before farrowing vaccinate the sow with litterguard
- **Repeat the dose 2 weeks before farrowing**
- 10-7 days before farrowing wash the sow, deworm and dip the sow to remove worms and mange mites respectively
- Move the sows to the farrowing pen 10-7 days before farrowing so that they get accustomed to the new environment
- Handle the sows gently when moving them. Use slow movements and remove any equipment, feed or anything that might distract sow movement
- Check for any abnormal behavior

B.M 03-6 Culling

- A strict herd replacement policy should be followed
- Reasons of culling to be followed as stated in factsheet
- Culled breeding stock must be disposed of as soon as possible
- Culled stock must be timeously replaced so that the breeding herd remains the same

Code F.M 4-FARROWING MANAGEMENT

Objective: To ensure that the sow farrows in the right environment and piglet survival is achieved

F.M 04-1 Pre farrowing

- Clean and disinfect the farrowing house before placing the sow
- Ensure the house is dry before moving the sow
- Check that the crate is in order and that there are no damaged floors that might cause injury
- Check to see that the waterers are functioning properly
- Locate sows close to farrowing according to sow card records
- Avoid other personnel from moving in the path of the sows
- Never beat the sow when moving her, use gentle persuasion and patience
- Close the door behind the sow once in the right place
- Check heat lamps 24 hours before expected farrowing

F.M 04-2. Farrowing

- Make frequent observations to predict when farrowing will occur by checking for the signs of farrowing which include, **nest building, increased restlessness, swollen udder, milk that can be squeezed from the teats 12 hours before farrowing, increased respiration from about 25-75 breathes per minute, twitching of tail, expulsion of blood stained fluids.**
- Farrowing normally lasts 2-3 hours
- Constantly check and remove membrane from piglets to avoid suffocation.
- Check on the progress of farrowing, if no piglet is produced after 45 minutes and the sow is straining help should be given
- Check for completion of farrowing- expulsion of the afterbirth (placenta) within an hour after farrowing, this can be released in 1-3 portions and also the sow will no longer be straining

F.M 04-3. Assisting a sow with farrowing problems

- Wash hands and the sow's vulva with soapy water
- Ensure finger nails are clipped to avoid damaging the sow's delicate tissues
- Apply a lubricant to avoid friction in the passage
- If sow is lying on left side use the left hand to explore the birth canal and if lying on the right side use the right hand.
- Gently start by placing 2 fingers in the vulva checking for piglets
- Shape your hand and fingers like a cone and gently push your hand into the vagina
- Do not reach any further than necessary, normally should not go beyond the elbow
- If it's coming head first, wrap thumb and forefingers around its ears and jaw and pull gently
- If birth canal is too tight grasp lower jaw with your thumb under the tongue and your index finger in the V-shaped bones of the lower jaw, or place your thumb over the pig's nose and index finger behind the upper needle teeth for a firm grip. Pull gently.
- If presented backwards, place index finger between the legs, place thumb on outside of one leg and index finger on the outside of the other leg, squeeze together and pull gently
- Do not break the umbilical cord until it breaks naturally
- Remove placental tissues from the piglet's body
- Check whether there is need to continue assisting the sow as it can deliver naturally after assistance.

F.M 04 -4. Use of oxytocin

- Before injection stimulate natural oxytocin release by either vaginal palpation or udder massage or keeping piglets suckling.
- Never use oxytocin before checking the birth canal for obstructions
- Follow the recommended dosages, using a 16-18mm gauge needle on the neck
- If the sow is farrowing normally do not use oxytocin
- Administer oxytocin when the uterus is fully dilated
- Limit use to 2 doses per sow

NB: Improper use of oxytocin may cause umbilical cord rupture, leading to higher still births. High doses may result in a refractory period in the sow lasting

for 3 hours in which her natural oxytocin or injectable Oxytocin fails to stimulate uterine contractions.

F.M 04-5 Managing the sow after farrowing

- Check the udder for abnormal signs of swelling and congestion and the vulva for any discharge and treat as per farm protocol
- Feed the sow 2-3 times a day as per feeding of lactating sow protocol, starting gradually until it gets the full quantity within 4 days and the feed will be maintained until weaning
- Keep stress to a minimum
- Watch for any changes in appetite, alertness or general physical appearance and give attention as needed

Code N.B -05-MANAGING NEWBORN PIGLETS

Objective: To ensure piglet survival and reduced mortality

N.B 05-1 Colostrum intake

- Help smaller at risk piglets to take up colostrum within the first 12 hours of birth
- Split suckle by removing the heavier piglets after they suckle and placing them in a creep area and allow the smaller piglets to suckle for 1-2 hours
- Ensure all piglets take in colostrum on the day of birth
- If the sow dies and there is no other sow to foster on, or has no milk prepare and feed the piglets with artificial colostrum as presented in fact sheet.

N.B 05- 2 Fostering

- Allow piglets to nurse (if possible) from their mother for 4-6 hours before fostering
- Focus on small, weak piglets that have not established a teat
- Match piglets for size, weight and number according to the capacity of the sow
- Limit cross fostering to the first 24 hours after birth
- Fostering only effective on pigs that would have farrowed within 3 days of each other
- Teats not being used will dry 3 days after farrowing

N.B 05 -3 Daily checks on piglets and Identifying disadvantaged pigs

- Light weight pigs, less than 1.4kg at birth
- Check that piglets are able to nurse
- Chilled pigs-piling, fluffy hair coats and shivering are signs of chilling. Quickly warm them up
- Slow to nurse pigs-late born pigs receive late colostrum, help them to nurse
- Help splay legged pigs by tapping them up and within 2 days they will be stable
- Note any signs of diseases such as scours or joint ills and treat accordingly

N.B 05-4 Operations done on piglets

- Navel care-Cut the navel 3-4cm below the piglet stomach and dip in an antiseptic immediately after the piglet is born
- Ear notching-should be done on the day of birth for record keeping and notches should be properly positioned to avoid difficulty of reading later in life.
- Teeth cutting to be done within the first 12 hours of birth
- Tail docking-Using a disinfected stainless-steel scissors, cut the last third (roughly 3cm from the tip of the tail), should be done within 12hours of birth when it is least stressful on the piglet.
- Ear notching, eye teeth cutting and tail docking should be done at the same time
- Iron injection- Within 2-3 days after birth and quantity to be administered as per label
- Creep feeding- Start feeding with creep a week after farrowing and ensure that the rule of thumb, little but often is followed. The creep should not be spoilt.
- Piglets should have access to clean water all the time

Code W. W. 06-WEANING AND WEANER MANAGEMENT

Objective: To make weaning a process rather than an event and ensure weaner survival and avoid growth checks later in life

- Weaner pens and equipment must be thoroughly cleaned and disinfected before the weaners are housed
- Wean piglets between 4-5 weeks of age, when they weigh at least 6kg
- Weaning requires 2 people, one in front and the other at the back of the farrowing crate
- Weaners must be properly handled
- Be careful as there is risk that the sow can become aggressive thus there is need to check one's position in relation to the sow.
- Determine which piglets are to be weaned and the pens they are to enter
- Match the number of pigs on the ground with that listed on the sow card
- Reduce too much drafts if piglets are to be ferried by a truck
- Do not put many piglets in the cut as they can pile up and get injured
- Weaners must be checked at least 3 times a day to ensure that they are eating and drinking
- Weaner pigs should have one watering space for 10 to 15 pigs,
- Feed should be placed in feeders just before piglets arrive
- Pigs should be grouped according to size and body condition
- Count the pigs as they enter in the pens
- Move pigs at a normal walking pace
- During the first 36 hours after weaning ensure that the pigs find water and drinkers
- Adjust the waterer height to shoulder height of the smallest pig in the pen
- Fresh feed should always be available in the feeder
- Walk along the weaner pool, to identify at risk weaners by checking if the weaner is alert or depressed, abdominal shape-round vs gaunt, skin, appetite-feeding at the feeder vs huddled, evidence of urination and defecation, signs of dehydration-sunken

eyes. Can also pinch the skin just behind front limb, if it remains folded it's a sign of dehydration

- If identified help the affected weaners by trying to hand feed them with wetted feed
- Continue to closely monitor the weaners during the whole weaner period
- Monitor feed and water consumption as a reduction is a sign of problem
- Act immediately in the event of illness
- Fill up paper work that might be required

Code G. P 07-MANAGING GROWING PIGS

Objective: To enable the growing pig to quickly grow and reach target market weights on time

- Group pigs by weight and sex
- Reduce aggressive behavior by managing group size by limiting the size to 30 and providing environmental enrichment
- Feed recommended quantities as stated in the feed protocol of the farm
- Ensure that clean water is always available
- Check on the health of the pigs at least 3 times a day
- Weigh pigs at a frequency that applies in the growing stock protocol

Code P.H 08-PIG HEALTH

Objective: To ensure that the pigs are in good health so as not to compromise their growth and production

P.H 08- 1 Identification of sick pigs

- Pigs should be checked on their health status at least 3 times a day, early morning, midday and late afternoon.
- If pigs are sick then the frequency of observation should be increased.
- Sick pig has an empty belly and sucked in sides, backbone is easily felt and has a rough hair coat
- Pigs that are small compared to pen mates need close attention
- Inform the supervisor at once when anomalies are observed.
- The pigs should be marked and moved to sick pens
- Remove and record dead pigs, alert the supervisor and properly dispose the animal by incinerating if the pig is not to be sent for post mortem
- Animals to be sent for post mortem should be stored in a cool place and sent without delay.

P.H 08-2 Drug and Drug Administration

- Treat pigs appropriately according to condition and herd health plan
- Do not overcrowd the sick bay
- Feed little and often. If available give sick pigs feed for a younger age group
- Handle needles with care and never remove needle caps with mouth
- Always ensure that syringes and needles are kept clean.
- Always read and follow the instruction label on the drug before use
- Use a sterile needle to draw the drug and another needle to inject the pig.

- Remove the needle before storing the drug.
- Choose the correct needle and syringe sizes for different classes of pigs.
- Remove air bubbles by tapping the syringe and plunger slightly .
- Restrain the animal to be injected
- Inject on the correct route as directed on the instructions - for example intramuscular injection site is in the neck, just behind and below the ear but in front of the shoulder
- Subcutaneous injections - Given to swine of all ages; are given in loose skin behind the shoulder
- In case a needle breaks whilst injecting, note the animal and inform the buyer
- Mark and record the treated pig and ensure the withdrawal periods are followed as directed
- If a needle drops, find it and replace it
- Do not straighten a bent needle
- If non disposable needles are used, change them when they are blunt.
- If pigs don't show signs of recovery after several attempts then a decision to euthanize it can be made
- If more than 5% of animals are falling sick in a herd contact a veterinarian
- Disposal of sharps and empty bottles in consultations with the suppliers of drugs

Code R.R 09-RECORDS AND RECORD KEEPING

Objective: To be able to assess production at different stages of the piggery project

- Set targets and these should be Specific, Measurable, Attainable, Realistic and Time bound (SMART)
- Have records for the different sections, e.g. Service records, Sow performance records, Boar records, Farrowing records, fattening records, death certificates
- Ensure that records are timely entered and up to date
- Have weekly and monthly reporting templates
- Submit the records as required
- Analyze the reports and improve on areas of concern

Code M.T 10 MARKETING AND TRANSPORTING PIGS TO MARKET

Objective: To send the right pigs to market and ensure that pigs are not stressed during transportation

- Determine the pigs being sent to market, locate and mark them
- Sort out the pigs to be loaded
- Ensure that the loading ramp and holding areas are free from protrusions and are not slippery
- Do not load pigs when temperatures are above 34°C
- Pigs should be moved quietly and with use of moving boards
- Spray pigs with water after loading or moving them when it's still hot to reduce heat stress
- Watch out for stressed pigs and those gasping for breath and allow them to rest
- Complete the animal movement paper work accurately
- Transporter not supposed to stop unnecessarily on way to market

APPENDIX 1- PRODUCTION TARGETS

Parameter	Target
Dry Sow section	
Sows/Gilts served per month	30 %
Returns	5%
Conception Rate	95%
Farrowing Rate	90%
Weaning to service Interval	7-10 days
Farrowings	
Piglets born per litter	11
Piglets born alive/litter	10.7
Still born per litter	0.3
Mummies per litter	0.03
Weaners	
Ave weaners per litter	9.9
Pre weaning mortality	10 %
Minimum weight at weaning	6kgs
Post weaning mortality (weaning to 8 weeks)	1.5%
Fattening Section	
Mortality during fattening	0.5%
Average live mass at 8 weeks	18 kg
Average age at slaughter	150 days
Slaughter weight	85 kg

