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SENIOR FIVE TERM 3

CONSTRUCT: ANIMAL PRODUCTION

TOPIC 1/3: Harvesting Farm Animals and Animal Products

Competency: The learner harvests optimal quality farm animals and animal products for the market.

Various harvesting techniques for the cattle and their product for the market

In animal husbandry, **harvesting** refers to the methods used to obtain products from cattle (milk, meat, hides, manure, etc.) and prepare them for the market. Each product requires specific techniques to ensure **quality, safety, and profitability**.

Milk Harvesting

- (i) **Preparation:** The cow's udder is cleaned and disinfected, and the first few streams of milk are stripped to check for quality/mastitis.
- (ii) **Hand milking:** Traditional method using clean hands; suitable for small-scale farmers.
- (iii) **Machine milking:** Modern technique using milking machines; faster, hygienic, and efficient for large herds.
- (iv) **Hygienic handling:** Washing udders, sterilizing equipment, and cooling milk immediately to maintain quality.
- (v) **Post-Milking:** The teats are disinfected again (post-dipped).
- (vi) **Storage and transport:** Use of aluminum cans or cooling tanks before delivery to collection centers or processors.

Meat Harvesting

- (i) **Slaughtering:** Done in approved abattoirs to ensure hygiene and animal welfare.

- **Pre-Slaughter Handling:** Animals are humanely herded into holding pens and inspected to ensure they are healthy. Fasting helps reduce the content in the gut, which minimizes contamination risk during processing.
 - **Stunning:** The animal is rendered unconscious to ensure a humane process and superior meat quality. Common methods include mechanical (captive bolt), electrical, or carbon dioxide (CO₂) stunning.
 - **Slaughtering/Exsanguination:** Immediately after stunning, the animal is hoisted by a hind leg and its major blood vessels (carotid artery and jugular vein) are severed to drain the blood.
- (ii) **Carcass dressing:** Removal of hide, head, hooves, and internal organs.
 - (iii) **Meat inspection:** Veterinary officers check carcasses for diseases before sale.
 - (iv) **Processing and packaging:** Meat is cut, chilled, or frozen for distribution to butchers, supermarkets, and restaurants.
 - (v) **By-products from this process, beyond meat and hides, include fats (for tallow, soaps), bones (for bone meal, fertilizer), and various glands/tissues (for pharmaceuticals like insulin).**

Hide and Skin Harvesting

- (i) **Skinning:** Careful removal of hides during slaughter to avoid cuts and damage.
- (ii) **Preservation:** Salting or drying hides to prevent rotting.
- (iii) **Processing:** Sold to tanneries for leather production.

Manure Harvesting

- (i) **Collection:** Dung gathered from cow sheds or grazing areas.
- (ii) **Composting:** Manure is piled and decomposed to produce organic fertilizer.
- (iii) **Biogas production:** Fresh dung used in biogas digesters to generate renewable energy.
- (iv) **Market use:** Sold to crop farmers for soil fertility improvement.

Breeding Stock Harvesting

- (i) **Calves and heifers:** Raised and sold to other farmers for herd expansion.
- (ii) **Bulls:** Used for natural service or semen collection in artificial insemination programs.

Summary Table

Product	Harvesting Technique	Market Preparation
Milk	Hand or machine milking	Cooling, storage, transport
Meat	Slaughtering, dressing, inspection	Cutting, packaging, distribution
Hide/skin	Careful skinning, salting/drying	Sold to tanneries
Manure	Collection, composting, biogas	Fertilizer or energy
Breeding stock	Raising calves, semen collection	Sale to farmers

Key Takeaway

Harvesting cattle products involves **specialized techniques** for milk, meat, hides, manure, and breeding stock. Proper handling ensures **quality, safety, and market value**, while also supporting sustainability through manure recycling and biogas production.

Uganda regulations and standards for milk

Uganda regulates milk production, processing, and marketing under the *Dairy Industry Act (1998)* and through the *Dairy Development Authority (DDA)*, with quality standards set by the *Uganda National Bureau of Standards (UNBS)*. These laws and standards ensure milk is safe, hygienic, and marketable both locally and internationally.

Key Regulatory Framework

- (i) **Dairy Industry Act (1998)**
 - Establishes the **Dairy Development Authority (DDA)**.
 - Mandates regulation of milk production, processing, and marketing.
 - Provides licensing requirements for milk processors, distributors, and traders.
- (ii) **Dairy Development Authority (DDA)**
 - Oversees development and regulation of the dairy industry.
 - Ensures compliance with hygiene, safety, and quality standards.
 - Promotes dairy sector growth and farmer training.
- (iii) **Uganda National Bureau of Standards (UNBS)**
 - Sets milk quality standards (composition, hygiene, packaging, labeling).
 - Publishes national standards for raw milk, pasteurized milk, UHT milk, and milk products.
 - Ensures milk meets international trade requirements.

Standards for Milk Quality

(i) Raw milk standards

- Composition-Milk must meet minimum fat and solids-not-fat content (e.g., 3.5% fat, 8.5% solids) and prohibit additives like preservatives (except salt/color).
- Must be free from contaminants, antibiotics, and adulteration.
- Bacterial counts must be within safe limits.
- Milk must be cooled immediately after milking.

(ii) Processed milk standards

- Pasteurized milk must be heated to destroy pathogens.
- UHT milk must be sterilized for long shelf life.
- Packaging must be food-grade, sealed, and labeled with expiry dates.

(iii) Nutritional composition

- Minimum fat and protein content specified by UNBS.
- Fortification (e.g., vitamin D) may be required for some products.

Environmental and Safety Regulations

- **Milk handling hygiene:** Farmers and processors must use clean equipment and maintain sanitary conditions.
- **Waste management:** Processing plants must dispose of effluent safely to protect the environment.
- **Occupational safety:** Workers must use protective clothing and follow safe handling practices.

Uganda regulations and standards for Beef

Uganda regulates beef production, slaughter, and marketing under the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), with standards guided by the Uganda National Bureau of Standards (UNBS) and sanitary requirements for export. These rules ensure beef is safe, hygienic, and competitive in both local and international markets.

Key Regulatory Framework

- (i) **Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)** Oversees beef safety, slaughterhouse standards, and veterinary public health. It enforces hygiene rules in abattoirs and ensures compliance with international sanitary measures.
- (ii) **Uganda National Bureau of Standards (UNBS)** Sets beef quality standards covering meat composition, hygiene, packaging, and labeling. It ensures beef meets both domestic and export requirements.
- (iii) **Sanitary and Phytosanitary (SPS) Certification System** Uganda follows OIE (World Organisation for Animal Health) guidelines to control diseases like Foot and Mouth

Disease (FMD) and Peste des Petits Ruminants (PPR). SPS certification ensures beef exported is disease-free and safe.

Beef Standards and Practices

- (i) **Slaughter regulations**
 - Animals must be slaughtered in approved abattoirs.
 - Veterinary inspection of live animals and carcasses is mandatory.
 - Humane slaughter practices are required.
- (ii) **Meat hygiene standards**
 - Carcasses must be free from contamination.
 - Facilities must meet hygiene requirements (clean water, waste disposal, cold storage).
 - Workers must use protective clothing and follow occupational safety rules.
- (iii) **Processing and packaging**
 - Beef must be chilled or frozen promptly.
 - Packaging must be food-grade and labeled with product details, expiry dates, and inspection marks.
- (iv) **Export standards**
 - Beef must meet SPS certification requirements.
 - Disease control measures (vaccination, quarantine) are enforced along cattle corridors.
 - Only certified slaughterhouses can export beef.

Summary Table

Area	Uganda Beef Regulation/Standard
Slaughter	Approved abattoirs, humane practices, veterinary inspection
Hygiene	Clean facilities, protective clothing, safe waste disposal
Processing	Chilling/freezing, food-grade packaging, labeling
Export	SPS certification, disease control, certified slaughterhouses
Oversight	MAAIF (policy & inspection), UNBS (standards), OIE guidelines

Key Takeaway

Uganda’s beef industry is regulated through **MAAIF policies, UNBS standards, and SPS certification systems** to ensure meat is **safe, hygienic, and disease-free**. These measures protect consumers, improve market competitiveness, and enable Uganda to participate in international beef trade.

Thank You

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