

Layout peternakan ruminansia

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Introduction

- ❑ Ruminants environment → air temperature, relative humidity, air velocity, rain, sunlight, etc.
- ❑ There is little concern with the effect of environment on ruminants so long as they grazed on pasture or ranges.
- ❑ The shift of ruminants raising into confinement structures (feedlot) and high density production operation → ruminants building design become critical as space requirement, wet bedding, ammonia buildup, odors and manure disposal could be a problem.
- ❑ Control or modification of ruminants environment should offers possibility for improving ruminants performance and saving land cost

Introduction

Environmental Parameter	Value	
	Comfort Zone	Optimum
Temperature	5 – 21 °C	10 – 15 °C
Acceptable Humidity	50 – 75 %	
Ventilation	Winter : 2.1 – 2.8 m ³ /min	Summer: 5.7 – 14.2 m ³ /min
Drinking Water	Winter : 10 °C	Summer :15-24 °C

SITE SELECTION

- The ruminants production particularly on intensive system (cattle feedlot: breeding and fattening) requires more complex management.
- They depends largely upon investment in practical, durable, and convenient buildings and equipment to support the care, feeding and management of the animal.
- Establishing buildings and equipments in feedlot should consider factors such as **location and site plan**

Considered Factors :

1. TOPOGRAPHY, SOIL CONDITION AND CLIMATE → AFFECT :
 - SITEPLAN FOR BUILDING AND FACILITIES
 - CATTLE HOUSING SYSTEM
 - DRAINAGE SYSTEM
 - WASTE DISPOSAL SYSTEM

Considered Factors :

2. WATER SUPPLY
 - ▣ FEEDLOT REQUIRE CONTINUOUS SUPPLY OF GOOD QUALITY WATER FOR SUCH USE AS DRINKING WATER, DILUTION OF EFFLUENT WATER, DUST CONTROL, FIRE CONTROL AND FEED PREPARATION
 - ▣ WATER RESOURCES : THE SPRINGS, DEEP WHEEL, DAM, RIVER ETC.

Considered Factors :

3. Feed Supply

- Continuous supply of cheap feedstuff is important to support efficient ruminants production on feedlot system
- Many cattle feedlot operations located close to agricultural areas or have good access to supplies of grain and agroindustry by products.

Considered Factors :

4. Supporting Infrastructures

- Roadway, highway
- Electrical power
- Communication network (telephone)

5. Surrounding Residential Areas

- The acceptability of the people live in surrounding feedlot
- Staff recruitment should consider local staff
- It is necessary to locate ruminants feedlot away from residential area → buffer zone and minimum distance to residential area





SITEPLAN

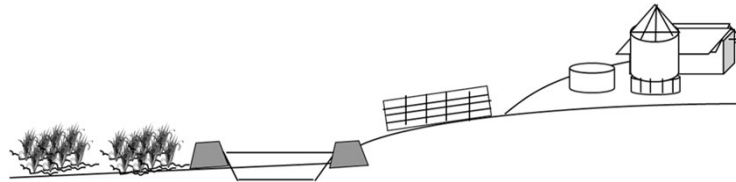
- ❑ A good feedlot siteplan can guarantee effective and efficient production process and do not cause negative environmental impact



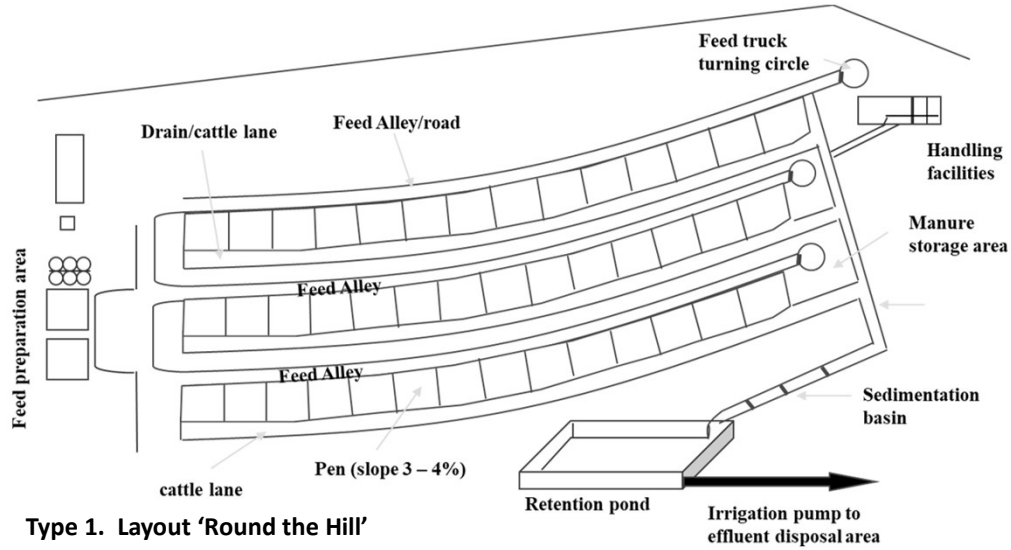
SITEPLAN

- ❑ Cattle/Sheep feedlot → dynamic production system incorporating several components, which are :
 - Feeding system : feed storage, silage pits, feed processing mill, feed mixing/delivery truck, feed alleys, feed trough.
 - Watering system : water source, pumps and mainlines, temporary storage, pen reticulation system, water trough.
 - Cattle handling system : receival facilities, cattle lanes, pens, hospital yards, dispatch facilities.
 - Drainage system : pen drains, main drains, sedimentation system, retention pond, effluent utilisation areas.
 - Manure handling system : manure cleaning equipment, manure transport equipment, stockpile and manure screening area, manure utilisation areas.
 - Staff facilities : office, amenities, lunch room, car park, workplace safety facilities.

SITEPLAN

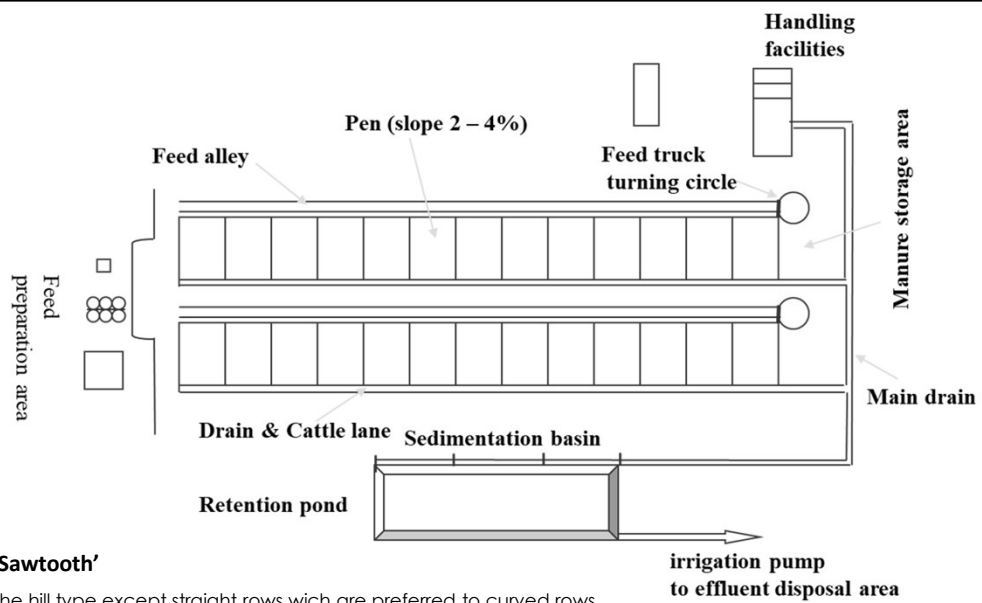


WASTE UTILISATION AREA	EFFLUENT/HOLDING PONDS	PENS	FACILITIES
GOOD AGRICULTURE SOIL HIGH PHOSPHORUS ABSORPTION CAPACITY LOW EROSION HAZARD LOW SALINITY SOIL	HEAVY IMPERMEABLE CLAY SUITABLE FOR DAM CONSTRUCTION	TYPE 1 = 2 - 6 % TYPE 2 = 0.5 - 2.5 % WELL DRAINED SOUND FOUNDATION NO ROCK OUTCROPS	WELL DRAINED SOUND FOUNDATION NO EXPANSIVE HEAVY CLAY
NO FLOODING	NO SHALLOW GROUNDWATER		NO SPRINGS



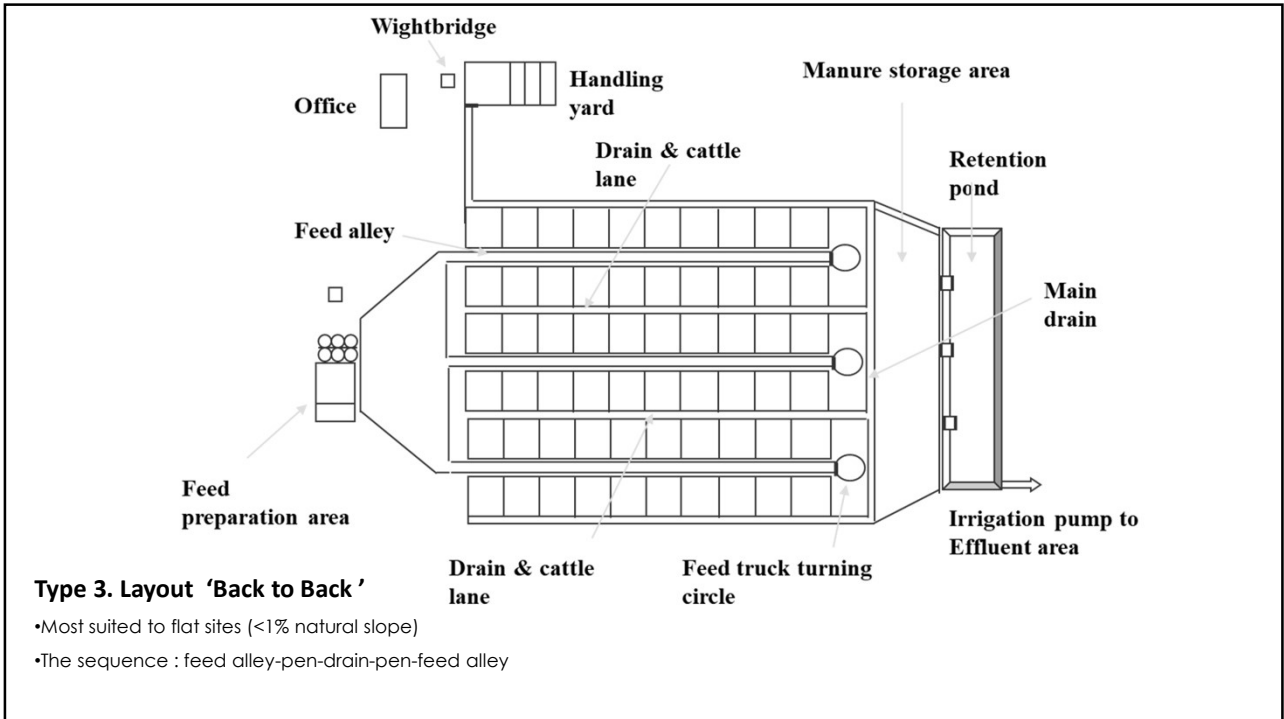
Type 1. Layout 'Round the Hill'

- Suitable for hilly sites (slope 3-4% or uneven topography)
- Parallel row of pen curve around contour or hillside
- The sequence: feed alley-pen-drain-feed alley



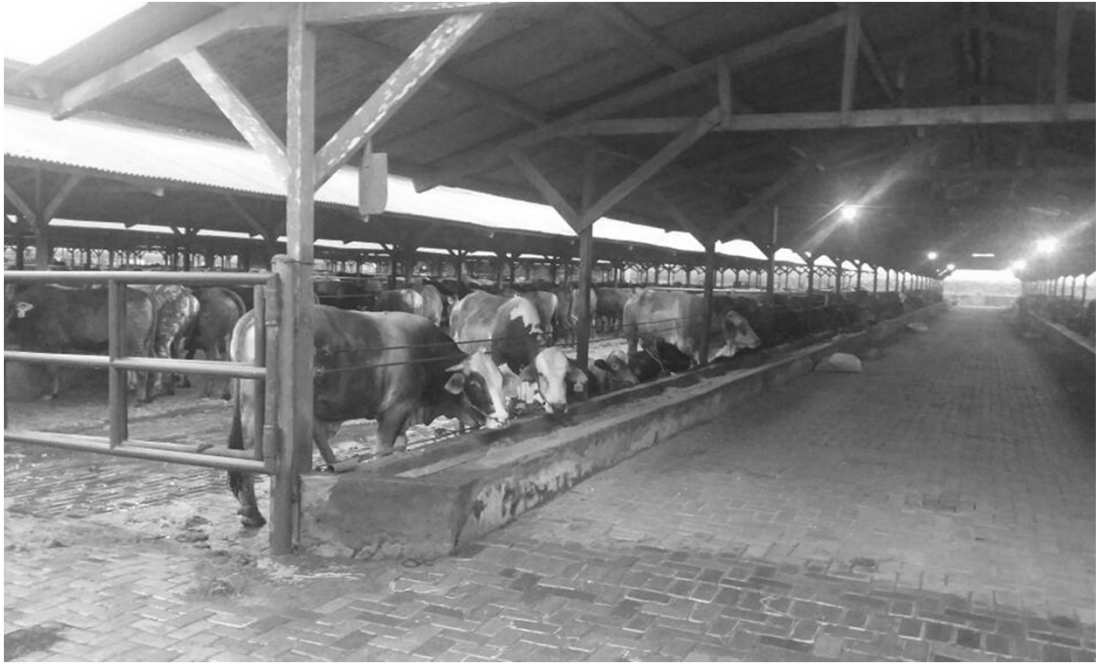
Type 2. Layout 'Sawtooth'

- Similar to Round the hill type except straight rows which are preferred to curved rows
- Suitable for sites with natural uniform slope 1-4%
- The sequence: feed alley-pen-drain-feed alley



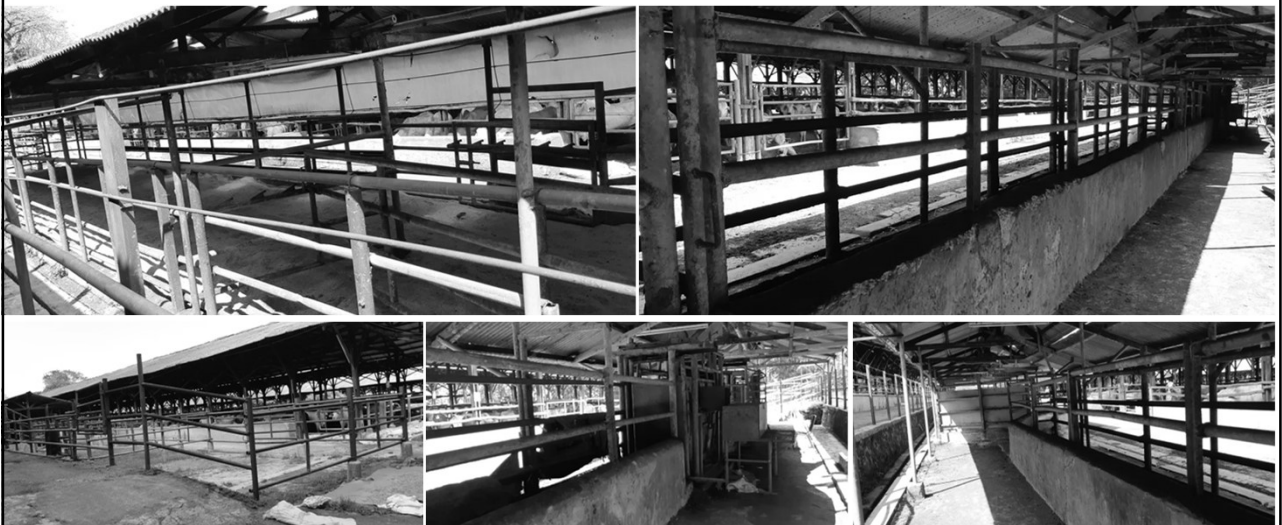








Crowding Yard



Loading dok + Timbangan Sapi + Cattle Crash



Kandang Sapi



Waste Management



Timbangan Truck + Silo Amoniasi



