

A photograph of Jerry Lindquist, an MSU Extension Grazing & Field Crop Educator, standing in a field of tall, golden-brown grass. He is wearing a red short-sleeved button-down shirt, a dark baseball cap, and glasses. He is holding a white sign on a wooden post. In the background, a herd of brown and black cattle is grazing. The text "Basics of Raising Livestock" is overlaid in yellow at the top of the image.

Basics of Raising Livestock

Jerry Lindquist

MSU Extension

Grazing & Field Crop Educator

My Background

- MSU Extension Educator for 35 years
- Forage & Grazing Expertise
- Raise beef cattle, goats and horses at home
- Milked dairy cows, raised pigs and sheep mainly for 4-H projects



What we will cover tonight

- Beef cattle
- Goats
- Sheep
- Swine
- Addressing the basic requirements of facilities, space, time, management, risk, benefits, etc.

Why Raise Livestock?

- Many different reasons & financial gain is only one of them
- Tradition
- Source of local, wholesome, economical, & flavorful supply of protein
- Enjoyment
- Therapy – they give you a reason to get out of bed in the morning
- Property tax classification
- Justification of land ownership
- Something for the kids to do
- Make for a good part time job for an evening moonlighter or a stay at home parent

Why You Should Think Twice About Raising Livestock

- They demand care which can tie you down
- The return on small scale livestock production is not lucrative, and often is a net loss
- They die, especially under the care of beginners
- They may irritate the neighbors
- There may be local zoning ordinances or laws against livestock production on your property
- They can become family pets never to be sold or harvested for meat

Time & Labor

- Most livestock have to be fed twice each day (on weekends, during vacations, youth events, family events, etc.)
- Livestock grazing pastures are the exception but they still should be observed at least once a day (healthy, have water, are inside the fence, and predators are outside the fence)
- Premises have to be cleaned, manure removed and properly managed

Michigan Right to Farm Guidelines

- Voluntary guidelines established in 1983 in Michigan to provide farmers engaged in agricultural production from nuisance lawsuits and local regulations if generally accepted agricultural practices are deemed to be followed
- Address fertilizer & manure management, livestock siting facilities, animal care, pesticide application, irrigation & more
- Are not laws but guidelines which are highly respected and have been historically honored at the judicial level
- Are not applicable in municipalities
- http://www.michigan.gov/mdard/0,4610,7-125-1599_1605---,00.html

The following slides on swine are
courtesy of

Tom Guthrie

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- Typical Market Hog by today's standard
 - Live weight 275 lbs.
 - Carcass weight 208 lbs.
 - Backfat (10th rib)..... 0.7 inches
 - Percent Lean..... 54.8%
 - Lean meat.....114 lbs.

Types of Pork Production Systems

- Farrow to Finish
- Bred to Wean (Note: you need an established market for this type of production)
- Feeder to Market
 - Example: 50 lbs. to market weight
- Outdoor vs. Indoor
 - Combination
- Many farmers start with feeder pigs (less demanding)

Types of Pork Production Systems

- Outdoor vs. Indoor
 - Advantages and disadvantages
 - Combination of both
 - Climate
 - Season



Management – Fencing for Swine

- Important to have a sturdy perimeter fence
 - Check frequently
 - Avoid liability issues
 - Damage to neighboring properties
 - Public roads
 - At least 40 inches high
 - Electrified wire near the bottom
 - Prevents rooting underneath fence

Management – Fencing for Swine

- Interior fencing for pastures or lots
 - Divider fence
 - Less expensive and easier to install
 - Electric fence
 - Two strand
 - 10 and 18 inches for sows and growing-finishing pigs
 - 6 inches for nursing pigs

Management – Housing for Swine

- Shelter
 - Stationary or portable
 - Summer
 - Protection against extreme heat
 - Protection against sunburn (especially white breeds)
 - Shade is important (pigs DO NOT sweat)
 - Consider a wallow
 - Winter
 - Protection against extreme cold
 - Protection against cold rain combined with wind



Management – Housing for Swine

- Shelter
 - Space and shade requirements

Hogs up to 100 lbs. - 4 sq ft/hd

Hogs over 100 lbs. - 6 sq ft/hd

Sows and boars - 12 sq ft/hd

Farrowing sows - individual huts

Housing – Bedding for Swine

- Options
 - Low quality grass hay
 - Whole or ground corn cobs (abrasive – avoid with young pigs)
 - Baled cornstalks
 - Baled, shredded newspaper
 - Shavings
 - Straw
 - Other
- Choice of bedding (availability, season of year, etc.)
 - wet, cold, or muddy conditions to help the pigs create a dry, draft-free microenvironment.

Housing – Pig Comfort Zone

- What is good for one is essentially NOT good for all

Class of Pig	Preferred Temperature, Degrees F	Notes
Piglets	85 – 90	Supplemental heat
Sows and Boars	70 or less	Well bedded, dry place to lay in cold temperatures
Sows – Farrowing	65 – 70	
Nursery Pigs	70 +	Less than 70 if 6 weeks of age or older, if bedding available
Growing – Finishing	70 – 75	Straw can be used in cold temps to keep pigs warm

Nutrition – Nutrients

- **Classes of nutrients**
 - 1) Water (MOST Important)**
 - Forgotten nutrient
 - 2) Carbohydrates**
 - Energy (corn)
 - 3) Protein**
 - Amino Acids (soybean meal)
 - 4) Lipids**
 - Fats and oils
 - 5) Minerals**
 - Major and trace minerals
 - 6) Vitamins**
 - Required as co-enzymes in metabolic reactions

Management – Water

- Water
 - Obviously, make sure clean, fresh water is available at all times
 - Intake has a direct effect on growth, performance
 - Drinking devices
 - Nipple drinkers
 - Hooked up to water source
 - Portable enclosed tanks
 - Utilized to get water to pig on pasture
 - Livestock tanks
 - Pigs may lay in them to cool off



Nutrition – Nutrients

- Energy Sources
 - Cereal grains major source
 - High in carbohydrates, palatable and highly digestible

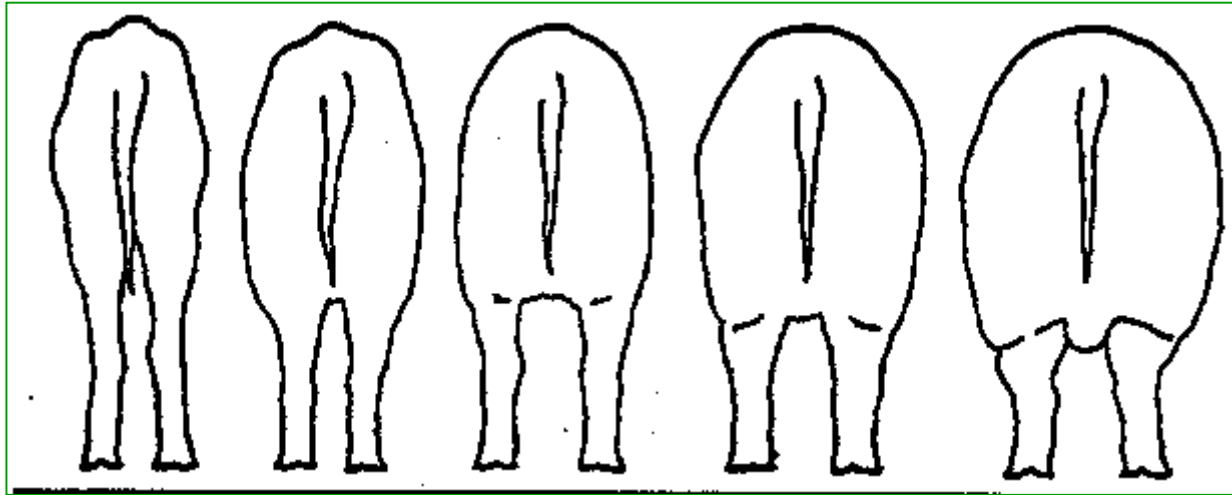
Energy Source	Considerations
Corn	Highest energy level, economical in Midwest
Wheat	Equal to corn in feeding value, palatable if not ground to finely, expensive
Barley	Higher in fiber and protein than corn, 85 -95% feeding value of corn
Oats	Higher in fiber and protein than corn, 80% feeding value of corn
Naked oats (hulless)	Good protein value, availability and cost
Rye	Energy value intermediate to wheat and barley, anti-nutritional factors
Grain Sorghum	Feeding value similar to corn, some varieties 80 – 90% energy of corn
Buckwheat	High protein quality, antinutritional factor – fagopyrin, limited inclusion
Corn and cob meal	Low in energy compared to most other energy sources

Nutrition – Nutrients

- Protein – chains of amino acids
 - **Soybean meal** common source
 - Amino acid profile matches the pigs needs reasonably well

Protein Source	Considerations
Full Fat Soybeans	Anti-nutritional factors, must be heat treated
Field Peas	Low levels of a few key amino acids, limits use in small pig and sow diets
Canola	Up to 15% in diets for all phases except for gestating and lactating diets up to 10%
Alfalfa	Nutritional quality may vary depending on stage of maturity, harvesting, handling and storage methods. Anti-nutritional factors (saponins and tannins) Not recommended for weanling and young growing pigs
Sunflower seeds	Up to 10% for weaned and grow-finish pigs, up to 30% for gestating and 20% for lactating
Fababeans	High in unsaturated fatty acids makes them susceptible to rancidity if stored for more than one week after grinding

Management – Body Condition



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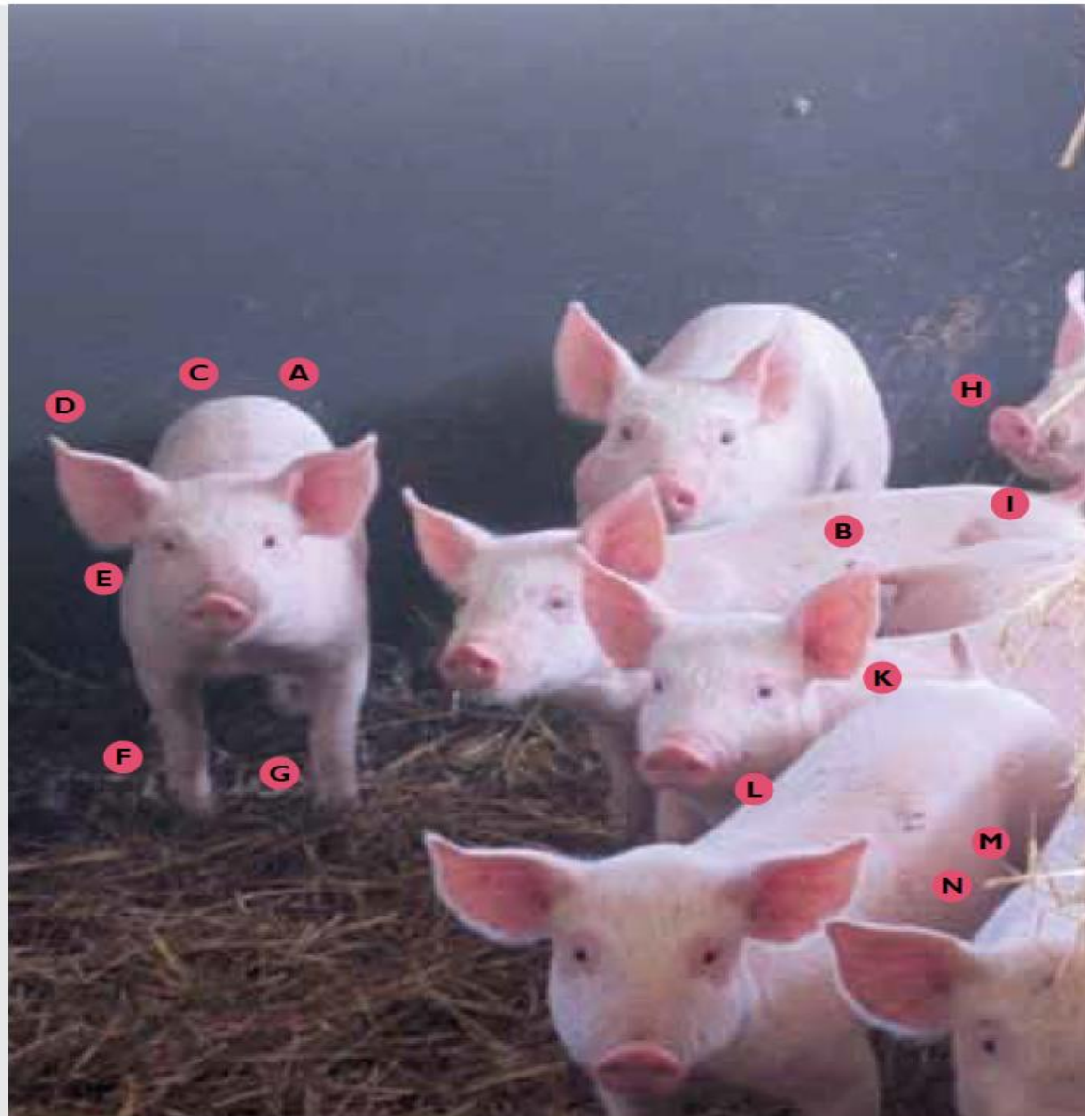
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Pig Health

- **Important** – if buying pigs, buy healthy pigs from a single source
 - Attempt to get as much information about the pigs as you can
- Animal Health Management Plan
- Establish a relationship with a veterinarian (VCPR)
- Observation is a powerful tool

- A** Hair – smooth flat
- B** Back – level
- C** Body condition score – at least 3/5
- D** Ears – alert, pointed at you
- E** Eyes – open, bright, interested
- F** Joints – no swelling, easy movement
- G** Feet – no swellings, marks or ulcers
- H** Nose – raised, sniffing
- I** Tail – mood (alert, upright), no skin damage
- J** Anus – no diarrhoea
Vulva – no discharge
- K** Neck – no fighting marks or injection site abscesses
- L** Mouth – no discharge
- M** Breathing – regular, shallow
- N** Belly – full, no swellings



Swine Resources

- Michigan State University Extension – Pork
 - <http://msue.anr.msu.edu/topic/info/pork>
- Swine Management - Pork Information Gateway (PIG)
 - <http://porkgateway.org/resources/type/factsheets/>
- Swine Breeds
 - <http://www.ansi.okstate.edu/breeds/swine>
- Swine Health
 - <http://www.thepigsite.com/diseaseinfo/>
- Swine Nutrition - National Swine Nutrition Guide
 - www.usporkcenter.org

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Beef Cattle

- Various production systems
 - Cow/calf
 - Stocker cattle
 - Feedlot cattle
 - Breeding seed stock
 - Custom raising/grazing
 - Grass-fed

Cow/calf

- Breed beef cows by natural sire service or A.I. to annually produce feeder calves
- Calves can be sold at livestock markets feeder sales, direct to feedlots, as club calves for 4-H & FFA youth, or feed them out yourself, often as freezer beef
- Requires 2 – 4 acres of pasture per cow & her calf for grazing May - October, plus 0.75 – 1.5 acres of hay for winter feed Nov. – April, (or hay can be purchased)
- You control your herd's genetic direction with sire selection

Stocker Cattle

- 8 – 12 month old cattle are purchased in late winter to spring, grazed all summer and sold to feedlots or livestock markets in the fall to be feedlot finished
- Can be beef breeds or male dairy cattle
- Profitability depends heavily on buying them right & selling them right
- Usually 0.75 – 1.75 acres of pasture are needed per head for the grazing season
- Buildings and hay making equipment are not needed, can even rent land, just install fence and graze (often used as low cost entry method into the cattle industry)
- Not a year round enterprise

Feedlot Cattle

- Common feedlots today are 20,000 – 200,000 head, but there are still small feeders that feed out 20 – 80 head per year (especially when corn is reasonably priced)
- Buy feeders calves typically in the fall and sell to packers or individual customers 8 – 12 months later
- Diet is usually corn based and land for corn silage & shelled corn is usually a necessity, along with harvest & feeding equipment
- Feedlot can be a roofed structure or a dirt lot with concrete feed bunk area
- Must have a way to handle manure

Seed Stock

- Sell breeding stock as yearling bulls, yearling heifers, bred females, either commercial unregistered or as registered stock
- Usually takes a reputation of having good cattle which can take years to build
- Requires advanced genetic selection methods for a herd that others desire

Custom Raising/Grazing

- Raising cattle owned by other farms for a fee
- Custom raising dairy heifers for large dairies is common
- Grazing beef cows for other farms is a possibility
- Many different configurations are possible
- Summer time custom grazing can be done with lower investment capital if grazing land is rented (don't need to own cattle, equipment, & land)

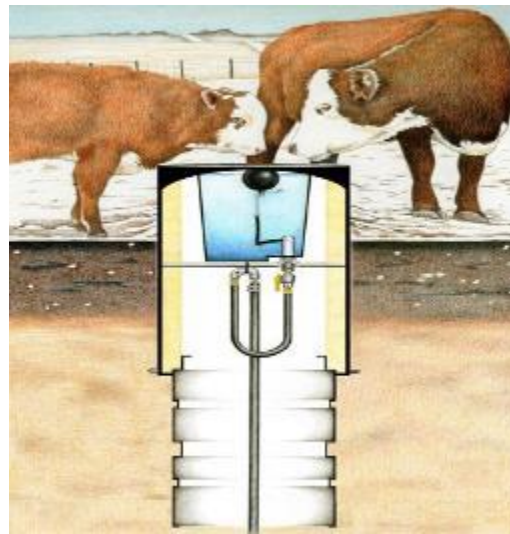
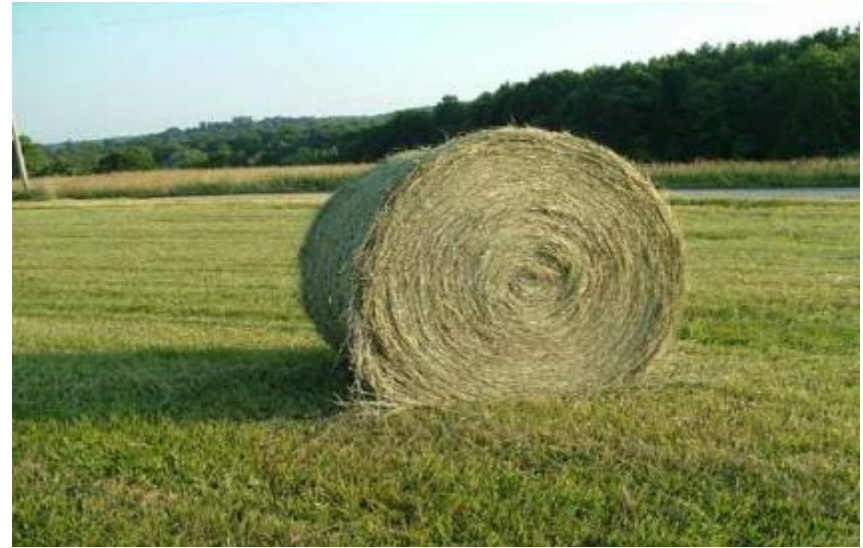


Grass-fed Beef

- Cattle that are fed all forage diet from birth to harvest only consuming mothers milk, pasture grass, hay, minerals, vitamins and other forages that do not contain a starch such as corn or other grains
- Consumers demand has grown for this product that they believe is more healthy & has a lower environmental impact than corn fed beef (differences are really slight), & for this they have been paying 10 – 25% more
- Require high quality pasture and winter dairy quality hays to gain adequately and produce acceptable beef quality
- Usually grow slower (1.0 – 2.25 lbs/hd/day) than grain fed beef so it takes 2 -6 months longer to finish, with a lower carcass fat cover and usually a 5 – 15% lower carcass weight
- Can be more profitable than grain fed beef if they can be harvested before a second winter of hay feeding

Beef Cattle Requirements

- Fencing – structure to sufficiently confine animals
- Hay making equipment or need to purchase hay
- Working chute to handle cattle
- Land



What is considered a legal fence in Michigan

- Fence means a structure or natural barrier which is sufficient to confine an animal
- The design will be different based on the type of animal contained i.e. pigs vs. goats vs. deer
- The Fence Technical Guide of USDA's NRCS is the standard that is often referenced in Michigan. Is a 12 page document.
- This guide for example says beef cattle fence can include: non electric high tensile 5 strand min; electrified high tensile 4 strand min; woven wire minimum of 42" high with at least 1 additional wire strand at least 4" above; barbed wire 4 strand min; or wooden boards to a minimum height of 54"

Beef Info

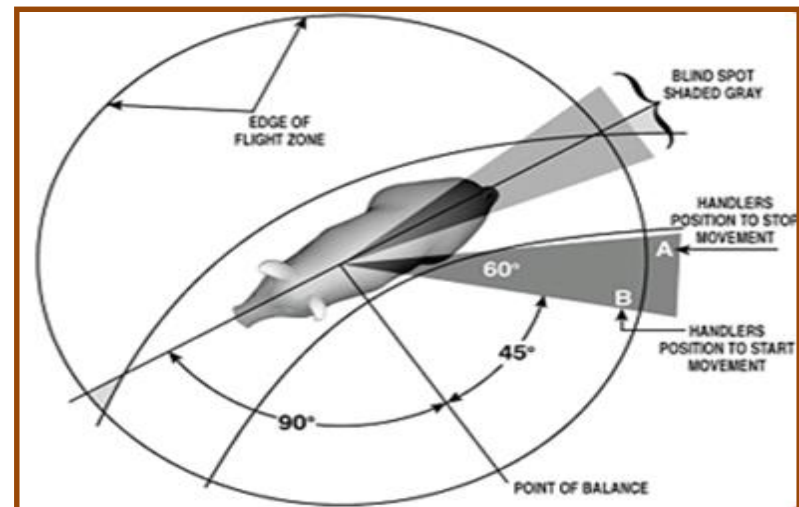
- Michigan State University Beef Team
<http://www.canr.msu.edu/beef/production/>
- Michigan State University Forage Connection
<https://forage.msu.edu/extension/>
- Michigan Cattlemens Association
<https://www.micattlemen.org/>

Animal/Human Safety

- Cattle are 6 - 10 times heavier than humans
- Bulls should never be trusted
- Cows at calving time can be aggressive
- Separating animals, or loading animals on trailers or any other abnormal activity can also be a dangerous time
- All livestock including sows, boars and rams can be dangerous

Animal Safety

- Have good equipment
- Sorting boards, rattle paddles, self catching headgates, corrals, working chutes, etc.
- Learn animal behavior, flight zones, proper animal handling procedures
- Don't handle, load out animals alone



Dealing with the Dangerous Animal

- Rely on the expertise of a professional – your local livestock hauler
- A good livestock dog is worth five men



Small Ruminant's - Sheep & Goats

- Manageable size for most everyone
- But that size also makes them more susceptible to predators
- Internal & external parasites are also challenging for these close grazing animals



Perimeter Fencing

- Solid lock hi-tinsel
page wire
- Low hot wire
- Sheep in predators out



Division Fences

- 7 strand hi-tinsel
- Good spray program
- Water line
- Not a predator fence



**Electric netting is a secure and portable fencing option
(35" plastic strut version shown)**



Herd Health

- Vaccinations, parasite management, and management at birth are all issues to be consulting with a veterinarian
- Establish and maintain a veterinarian/client relationship





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