

ENERGY-EFFICIENT GRASS-BASED MEAT AND VEAL PRODUCTION AND MARKETING MANUAL



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1. BACKGROUND INFORMATION

The Energy-Efficient Grass-Based Veal Production and Marketing Manual provides information to farmers interested in grass-based livestock agribusiness. While the manual focuses on the production and marketing of grass-fed veal and beef, many of these principles can be applied to grass-fed production of lamb, goat and pork as well.

Publication of the manual was made possible by a grant awarded to The Center for Agricultural Development and Entrepreneurship (CADE), a non-profit located in Central New York State, by the New York State Energy Research and Development Authority (NYSERDA).

The purpose of the grant was to evaluate and pilot test grass-fed meat production and marketing systems. An important activity of the grant was to determine the energy- and cost-savings realized by farmers using grass-fed meat production methods as compared to conventional confinement operations. The grant also provided seed money for the formation of the Meadow Raised Meats Association (MRM), a cooperative of nine farmers. The availability of bull calves from local dairy farms, low cost pasture and farmers willing to participate in a new niche business supported the development of the Meadow Raised Meats association.

The primary driving force to find new, value-added markets for veal was the lack of profitable markets for bull calves. For example, several years ago a dairy farmer showed CADE staff and board members a check of \$.78 for the bull calf he just sold at auction-this was the impetus to look for new markets for bull calves. This vision of using grass-fed production system to "add value" to livestock and poultry ventures is beginning to pay dividends for the farmers in the association. The total Meadow Raised Meats Association sales in 2002 are projected to be \$285,000 for the sale of pasture raised veal, beef, poultry, goat, lamb, pork and sausage.

The manual is presented in two sections: production and marketing. The production section of the manual encompasses the many lessons learned through the two and one-half years of the grant by the livestock farmers in the Meadow Raised Meats Association. Also included in the production section of the manual is the Production Protocol developed by the MRM Association for raising grass-fed meats. The marketing section of the manual addresses the experience among farmers that marketing is the key factor in starting and maintaining a viable entrepreneurial farm business. The marketing section of the manual provides some of the most important basic skills required to market grass-based meat products and will aid farmers in operating more successful entrepreneurial enterprises.

We-CADE staff and board members-hope the production and marketing manual is useful to farmers looking for new opportunities and ventures. We thank NYSERDA's impetus and contract to undertake this project, and the participating farmers's entrepreneurial spirit are sincerely appreciated.

2. THE MEADOW-RAISED MEATS ASSOCIATION

Farmers in central New York producing veal, beef, lamb, goat, venison, pork and poultry formed the Meadow Raised Meats Association. These farmers were interested in joining the association because of its potential to sell grass-based meat products to new markets such as restaurants and specialty food stores. In addition, farmers felt that by pooling the products of association members, sufficient supply could be provided to meet market demands. In order to operate as a legal entity the MRM Association was incorporated as an IRS code Subchapter T farmer cooperative, with a tax exemption under section 521 on September 26th, 2001.

As part of the organizational work, the MRM Association developed the following mission statement:

To improve profitability and long-term viability of small family livestock farmers in New York through collective direct marketing of naturally raised meats to customers who are willing to pay a fair price for good food. MRM association has a secondary mission as an incubator for small farm businesses, providing guidance and assistance to build direct-from-the farm meat sales as the most profitable means of selling livestock.

Currently nine farms are members and total sales from MRM Association farms are projected to be \$285,000 in 2002. The average sales volume per farm is \$31,667 with a range from \$1,000 to \$100,000. Member farms are currently located in Delaware, Otsego, Oneida, Madison, and Tioga counties of New York State. The MRM Association charges a 20% commission on cooperative sales. This fee is used to pay MRM Association expenses related to product marketing and sales. The cooperative is a stock cooperative, but to date, no residual income has been distributed to member farms. The MRM Association encourages member farms to sell through other channels such as direct sales on the farm.

The MRM Association is selling the following products:

Veal	Venison
Beef	Sausage
Lamb	Pork
Goat	Ducks
Chicken and Turkey	

The current markets for the MRM Association are:

Direct from the Farm	Farmers' Markets
Restaurants	Internet Sales
Specialty Markets	

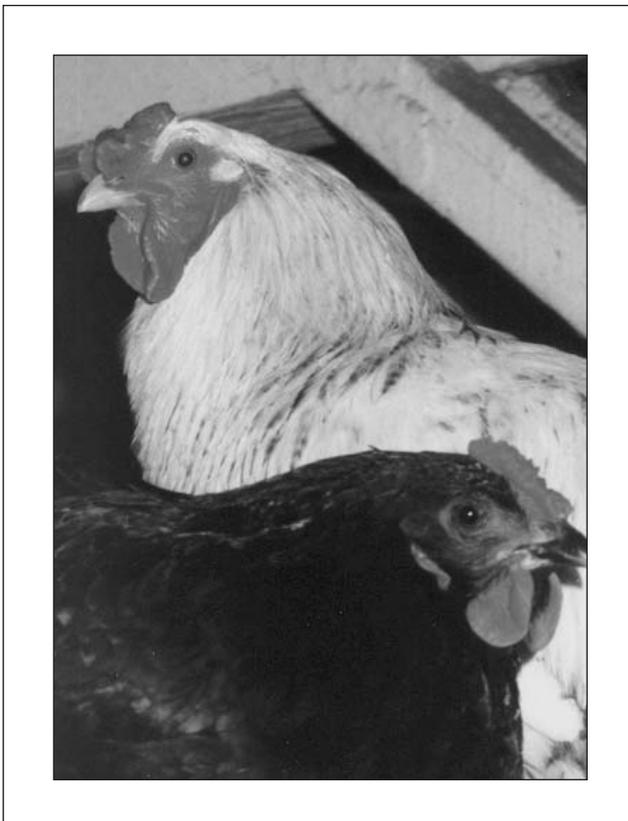
The words below of two of the association members demonstrate the commitment members have to grass-based production methods.

“We are, in essence, a grass farm. Most of our energy is focused on growing and managing the grass - which is then harvested by various livestock, and turned into (hopefully!) saleable products. These products include sheep's milk, eggs, turkey, chicken, pork, beef and veal. We are a transitional organic operation, which means that we manage in accordance with organic standards and practices, but are not yet certified . . . Above all else, we're trying to operate in a holistically sustainable manner; such that what we do makes sense from three angles: economic, agricultural, and quality of lifestyle.”

- Keith Morgan-Davie

“Stone and Thistle Farm's livestock and poultry are raised on pasture most of the year. Only grass and sunshine - no antibiotics, hormones, additives or drugs - are used to raise naturally healthy, farm-fresh milk, meat and eggs. Grass fed meat is lower in fat and calories but richer in "good" fats - such as Omega-3 fatty acids, and the cancer fighting fat, CLA. We grow a lot of love in our animals - you can taste it!”

- Tom and Denise Warren



3. DEFINITION OF MEADOW-RAISED MEATS

Below are the essential features of Meadow-Raised Meat production and marketing.

GRASS FED/SEASONAL

Meadow-raised livestock farmers rely on grass (pasture) as the primary diet of their animals. Grass-based livestock production is a lower cost, higher margin business when adequate markets exist and are developed. Pasturing animals instead of the conventional confinement and grain feeding system promotes animal health and well being. In addition, grass-based meats have greater nutritional value-lower fat and calorie content as well as higher levels of Omega-3 fatty acids and CLA.

NO PESTICIDES, ANTIBIOTICS AND HORMONES

Pasture does not require pesticides to support forage quality feed. Grass-based farmers do not use feed-level antibiotics and seldom need to treat animals for infections and respiratory diseases common in confinement operations. While hormones are used in confinement production systems for improving weight gain on conventionally raised animals, a growing number of consumers are demanding products free from hormones due to animal well-being, human health and environmental reasons. While grass-based livestock production methods reduce market size of the animals, profits do not decline. This is due to the higher prices consumers are willing to pay for meats raised with no pesticides, antibiotics and hormones and the lower input costs-per-pound of meat produced.

NICHE MARKET

Grass-based, "natural" meats represent a fast growing (30% annual growth rate) niche of the total market for meat in the United States. Niche markets are characterized by their small market size, limited number of producers, more complex production requirements than conventional production, and higher prices. Niche markets can be profitable if the consumer is willing to buy the product at prices that exceed those customarily paid for conventional products. The experience of the MRM Association is that farms can be profitable in the natural meats niche due to lower input costs and higher market prices.

4. THE BENEFITS AND CHALLENGES OF MEADOW RAISED LIVESTOCK PRODUCTION

Below are the benefits for farmers using grass-based livestock production techniques.

BENEFITS OF GRASS-BASED PRODUCTION

- 1) Less capital investment is needed to house livestock.
- 2) Central New York, formerly small dairy farm country, has an abundance of unused pasture available at low cost to farmers
- 3) Feed costs are negligible
- 4) Much less energy is consumed compared to the conventional production systems of producing and transporting feed.
- 5) Limited fertilizer and pasture preparation is required.
- 6) The farmer need not invest capital in planting and harvesting equipment.
- 7) No labor, energy or equipment is required to spread manure.

Grass based farmers must however accept the following challenges in how they produce meat.

CHALLENGES FACED BY GRASS-FED LIVESTOCK FARMERS

- 1) The time required to raise an animal on pasture to market weight is from 20% to 100% longer.
- 2) There are few, established distribution channels for grass-based meats, therefore the farmer must be more proactive in selling products.
- 3) Farmers can only graze animals for nine months.
- 4) If a farmer wishes to market year-round, confinement techniques will be needed for three months.
- 5) Increased pasture and the need to rotate pastures require more fencing.
- 6) Professional service providers such as veterinarian, nutritional, etc. specializing in grass-based production are hard to find.

5. CAPITAL INVESTMENT

LAND REQUIREMENTS

Meadow-raised veal requires one-half acre per head for the five to six month growing season. For beef the farmer should allow one-half acre to one acre (depending on pasture quality) for nine months and then haylage for three months over winter and then one acre for four to six months the following season. Any finishing cattle should be fed behind new calves on pasture. The farmer must follow Management Intensive Grazing practices to ensure that the veal will achieve market weight for the short pasture season. It should be noted that calves and beef cattle should not graze in the same pasture.

Calves do not fully utilize pasture until 8-10 weeks but the farmer is encourage to introduce it to pasture as soon as possible. The pasture should include high producing soil types and the farmer should avoid wet, steep, rocky, and brushy areas that are not suitable for intensive grazing.

The MRM Association has investigated two weaning methods for calves.

- 1) Very Low Input - The calf is fed milk replacer for the first 6-8 weeks and then weaned to pasture with very small amounts of grain (< 2 lbs./day).
- 2) Low Input - The calf nurses from a brood cow until weaned by the owner to pasture only.

Method one requires a longer duration to reach market weight market although body condition was comparable. Feed costs are higher for method two to increase the brood cow's milk production. Both methods result in similar profits before capitalization costs of \$100 - \$200 per veal calf and \$300 - \$400 per beef. The method chosen will reflect the farmers access to brood cows and herd size.

PASTURE ROTATION

Animals should be rotated to increase the productivity and life of the pasture. Pastures that are too large encourage animals to graze the most palatable species first. The animals will re-graze these areas while the less-desirable species mature. The pasture may require mechanical control at this point, which will increase input costs. A study conducted in 1993 (Anon. 1993. "Moving Pastures," Science of Food and Agriculture. January. p. 6.) concluded that using 10 paddocks increased the number of supported steers by 41%.

Rotational grazing moves the animal through the pasture in one to four days and then allows the necessary time for the grasses and legumes to re-grow. There are different rotational methods available to producers.

Research indicates that controlled rotational grazing can increase forage utilization from around 30 percent (under continuous grazing) to 60-75 percent for a 20-40-paddock rotation. This is primarily because animals are used as "mowers" and the frequency of rotation determines the amount of urination, defecation, trampling and bedding down animals do on a pasture, all of which contribute to decreased utilization of available forage. A greater stock density decreases selective grazing and spot grazing.

Controlled grazing also maintains better quality forages. Species of forages with higher potential quality yet more demanding management requirements (e.g., orchard grass-alfalfa, brome grass or endophyte-free fescue with a legume) have greater persistence in a forage system involving controlled grazing. Also, forage growth can be more carefully managed and kept in a vegetative state under controlled grazing, thereby improving forage quality. A controlled grazing program that prevents seedhead formation and maintains a more vegetative forage should reduce (though not eliminate) the impact of tall fescue toxins, as high-endophyte fescue seed contains substantially higher levels of potential toxins than the fescue leaves. This should also reduce competition with other non-toxic forages. (Morrow. "Matching Livestock and Forage Resources in Controlled Grazing Livestock" Technical Note. NCAT Agriculture Specialist. June 1998.)

It is suggested that calves be placed in legume rich pastures because calves favor legumes, which are high in protein and promote growth.

Further information can be obtained from the local Soil and Water Conservation District, USDA-Natural Resources Conservation Service and Cornell Cooperative Extension offices in your area.

Calves tend to congregate around water and mineral sources causing nutrient sinks in the pasture. The farmer must plan for some movements of the water and mineral locations to eliminate sinks and worn areas of pasture.

FENCING

A primary perimeter of smooth wire, high-tensile fence, coupled with interior subdivisions or paddocks, comprise the optimum use of pasture for raising grass based meats. The paddock size is determined by calculating the number, size and forage intake of the animals. Lane-ways, gates, and locations for water need to be planned in advance. The fence needs to be electrified with energy costs averaging \$7 per animal per year.

SHELTER

Veal calves require a dry, draft free area in the early season to ensure a healthy start for the calf. Beef require three- or four-sided structure for wintering. Haylage storage of sufficient size is also needed. While on pasture, nothing more than a mobile covered structure can be used although it is not necessary.

WATER

Adequate water in both quantity and quality is a priority. Water needs to be available in remote pastures. The pasture design should account for water distribution to minimize input costs. Streams and ponds should be fenced out to limit erosion and to protect water quality.

6. PASTURE MANAGEMENT

SPRING PREPARATIONS

First, the pasture should be inspected for winter damage. Excessive winter kill may require that the pasture be replanted. Soil samples, if possible, should be taken and tested at either local feed companies or the Cornell Cooperative Extension to determine if lime and/or fertilizer is needed to support new seedlings.

The amount of lime is based on the soil condition, previous applications and what you are planning to plant. The same parameters will determine the fertilizer requirements. It is beneficial to have a mix of legumes with deeper roots to fix nitrogen and use deeper soil nutrients.

FORAGE

The best height for most grass species is four to eight inches. Plant palatability and nutritional value decline rapidly for grasses over eight inches tall. Some farmers will mechanically clip pasture to maintain the correct height of the forage. Occasionally the farmer may have to cut ahead. Forage heights differ for lambs and goats.

Experience has shown that meadow raised animals grow best when the proper plant height is maintained. It is best to plan the pasture size and animal rotation to fit the plant conditions at that time. Pastures can be reserved and used after the frost or during a drought. Farmers can also harvest forage to support any overwintering expected. The farmer will need a suitable structure for the storage of forage.

Multispecies grazing-combining species in the same pasture-can increase net return per acre, since cattle, sheep, and goats do not eat exactly the same types of plants. Cattle tend to graze grasses, sheep eat grass and forbs (herbaceous plants), and goats prefer browse (leaves, stems, and twigs). The addition of goats to a cattle operation is a viable option; goat meat is lean and market demands for it have been increasing. When sheep are bonded to cattle, sheep losses to predators decrease. Another benefit of multispecies grazing is parasite control; however, including sheep or goats in a cattle operation will require extra fencing and management costs.



7. OBTAINING CALVES

DAIRY FARMS

Local dairy farms are an excellent source of potential calves. The herd and its health history is well known. If it can be arranged, breeding a milk cow that is difficult to breed to an Angus or Hereford bull results in offspring well-suited for pasture.

According to Allan Nation in the *The Stockman Grass Farmer* the initial investment in dairy calves is lower than for beef calves and dairy calves grow faster than beef calves in the spring. However, the advantages of a dairy beef enterprise over a stocker beef enterprise are periodically offset by an oversupply of beef from traditional breeds. He does not consider dairy beef to be a profitable enterprise in every year of the 10-year cattle cycle. He recommends dairy beef for the six out of 10 years when beef is rising or high in price. Niche marketing dairy beef will not be profitable in low or falling price years.

AUCTION

Purchasing at auction can present problems due to the higher incidence of diseases. Because a meadow raised animal will not be given antibiotics, any animal carrying disease brought into the herd may be infect many more animals. This forces the farmer to increase inputs via vet bills and to lose revenue by having to market the animal as a conventional beef or veal.

RAISING YOUR OWN BREEDING STOCK

Reserving breeding animals showing excellent growth and meat quality on pasture is another option. The farmer will have a reduced profit margin per animal due to the high cost (e.g. hay, grain, feed, labor, capital equipment, buildings, etc.) of over-wintering breeding stock. However selecting for the optimum grass-based meat qualities is a benefit of developing your breeding stock.



8. SELECTING BREEDS

It is important to have an operational plan in place prior to selecting and purchasing animals. The number and type of animals must be determined. The amount of forage and grain required for the animals to obtain market weight must also be calculated. The farm needs to have enough capacity to handle the animals. Pastures and fences may need to be upgraded as previously discussed.

It is best to select breeds proven to do well on the pasture and forage available on the farm. Match your specific forage grasses with the feed requirements of the breed.

OPTIONS

Several breeds have been examined for pastured veal. Regardless of the breed selected, it is important to select calves of long length (will result in more meat and better cuts) and wide muzzles (better grazers with fewer dental problems). The following chart depicts some of the variations between breeds for veal calves:

BREED	AVERAGE FINISH WEIGHT	TIME TO MARKET
Holstein	350 lbs.	5 to 6 Months
Holstein Cross	350 to 425 lbs.	5 to 6 Months
Pure Jersey	275 to 325 lbs.	5 to 6 Months
Angus	300 to 400 lbs.	5 Months
Herefords	350 to 400 lbs.	5 Months
Dexter	300 to 400 lbs.	5 to 6 Months

These values will differ based on feed methodology, pasture condition, breeding stock etc. They are listed for comparison purposes based on farmer experience in our area. At this time Holsteins have been the most successful breed for pastured veal while Herefords make excellent pastured beef cattle.

Grass-fed beef can be produced from any breed that marbles easily, however it should be from animal with a smaller frame and with a docile nature for the best eating quality. Breeds known for grass-fed production include Hereford, Angus and Scottish Highlander.

9. FEEDING

MILK REPLACEMENT VS. BROOD COWS

All calves need to be fed colostrum within the first few hours of birth. Leaving a calf on its mother or a brood cow provides better short-term growth, disease resistance, and assists in the development of the calf's rumen.

The farmer can use milk replacer, which is available at feed companies. Farmers should research milk replacer brands to ensure the best choice for the growth and health (e.g. preventing scours) of the pasture raised calves. The replacer contains the nutrients necessary for growth. Meadow raised meat producers can only use non-medicated milk replacer. The calf should be fed in the natural head up position.

The calf should be fed milk or replacer for 8 - 10 weeks. This length of time should ensure proper development of the rumen. Small amounts of grain one-half pound per day up to 60 days will allow for nutrient corrections and will also assist in developing the rumen. Rumen maturity is critical for success in weaning to pasture. If the animal is not properly digesting the forage then it will not have the optimum weight gain and profitability.

Some farmers have been successfully placing the calf out to pasture at six weeks with its mother or late lactation brood cow to increase curiosity for grazing. This can serve to speed-up the weaning process.

WEANING

It is critical to observe the calves during weaning to ensure that they are eating sufficient quantities of grass within the first two weeks of being placed on pasture. A calf on replacer should be weaned by diluting the replacer at week six and by week eight feeding only water. Observation will determine feeding habits and weight gain. A loss of weight can set back the transition to pasture by several days or weeks and will make the calves vulnerable to illness.

Prior to setting out to pasture the calves should be trained to the electric fence by placing a section in the corner of the pen.

PASTURE

Meadow raised veal require one-half acre per head for the 5- to 6- month growing season. For beef the farmer should allow one-half acre to one acre (depending on pasture quality) for 9 months and then haylage for three months to over winter and then one acre for four to six months the following season.

New Spring pasture has the best nutritional value and farmers tend to plan on setting calves out to pasture during this period to take advantage of the better nutrition during a key growth period. Calving in the spring will result, however, in finished product coming to market at the lowest price during the year.

GRASS/HAY

The amount of haylage required for beef to over winter is 55 lbs./day per animal.

GRAIN

Calves raised on replacer should be fed two pounds of grain (16-18% protein; cracked/ground corn, oats and soy) per day until they are placed in pasture. The amount of grain fed during the over winter period for beef is seven pounds per day per animal.

MINERALS

The soil test will indicate if various micronutrients or minerals are missing. The farmer will need to ascertain the amount of salt and minerals needed to supplement the diet. Occasionally, some minerals and nutrients will not be absorbed into the plants due to the soil pH. The soil pH will need to be adjusted by the addition of lime.

Missing micronutrients can be applied to the soil, but the most economical solution is to feed mineral supplements. The supplements can be mixed with water to reduce paddock design issues, nutrient sinks and labor costs. Minerals not removed by grazing animal will accumulate with other nutrients in the pasture reducing the need for future action or supplements.

WATER

A typical calf put to pasture will consume from six to 14 gallons of water per day increasing to seven to 17 gallons per day by maturity. The water requirements are affected by weather conditions, forage and feces moisture content, evaporation, body growth, etc. The farmer needs an efficient paddock design and water delivery system to accommodate these needs and prevent erosion and pasture nutrient sinks.

FINISHING

Depending on the market outlet, the veal will be finished at either 300lbs or 525lbs. They should be growing quickly the whole time in order to maintain a high quality meat with good tender texture. Restaurants prefer large veal chops while direct sales customers will purchase smaller veal cuts as long as the cuts are “meaty.”

Beef need to have access to high-quality grazing in order to marble properly. This entails planting different species of grass in order to have paddocks of proper quality available at different times throughout the year. Excellent quality feed is also necessary during the winter, which means haylage or top-quality alfalfa hay. Otherwise the animal will need grain, or will be tough.

10. HEALTH

Pastured livestock are most profitable if they reach a viable market weight in the expected time frame. Healthy animals will aid in achieving these objectives. Good nutrition, absence of disease, sanitation, reduction of pests, etc... all contribute to successfully raising profitable animals. Animals stressed by poor environmental factors will also not be profitable.

Any animal treated with an antibiotic for maladies such as pneumonia or bacterial infections will need to be removed from the herd and sold as conventional meat. Culling under-performing stock is recommended to improve long-term herd value.

STRESS

Meadow-raised cattle avoid stress factors encountered in feedlots and the handling associated with conventional confinement operations. Stressed animals tend to have more diseases (especially respiratory), suffer weight loss, and have poorer meat quality. Stress during slaughter can cause "dark-cutters," meat that is almost purple. Dark-cutters meat is considered low quality and difficult to sell. Changing the herd dynamics by added new animals can also create stress.

Farmers must be vigilant to ensure that these types of stress are minimized. Recent research by Temple Grandin of Colorado State University involves redesigning paddocks, herding techniques, and transportation methods to match the natural instincts of cattle. These techniques have resulted in reduced stress and better meat quality. To avoid the stress of transportation to the slaughter facility, it is a good idea to occasionally confine cattle for weighing, sorting and condition scoring. In addition, hand or bucket feeding of grain on a regular basis decreases cattle stress when in close contact with people.

FLY CONTROL

Pests affecting livestock include flies, ticks, grubs, and lice. An integrated pest management (IPM) is an important strategy for controlling and eliminating pesticide use. MRM association meats are produced without pesticides, therefore, IPM is a critical component of a successful grass based farm operation. IPM combines biological, physical, and cultural techniques to reduce pests to tolerable levels.

Some methods to control flies include cleaning up moist manure, spilled feed and damp bedding. Some farmers have successfully placed range chickens, turkeys, ducks or geese in the paddock to consume fly maggots on dung pats. Dung beetles have been studied for their ability to bury manure piles, thus lowering populations of horn flies and other dung-breeding flies.

The farmer can install a walk-through trap for horn flies and other pests. There is also research on light traps, baited traps, electrical traps, and sticky tapes for control of flies in confinement barns. ATTRA has published Alternative Fly Control which more fully describes the various non-insecticide method of pest control.

PARASITES

The first step in controlling parasites is to have your vet analyze fecal samples to determine the types and amounts. Reduction of medication for controlling parasites will reduce inputs which follows the MRM Association strategy of very low input grass-based farming. If several animals have parasites, the farmer may wish to intervene and reduce the concentration of manure in the pasture, or introduce range chickens and or dung beetles.

The most common parasite, the brown stomach worm, inhibits its maturation until the late fall. If an animal is infested, the quick and simultaneous maturation of a large number of brown worms may make the animal sick.

This is also a critical time for MRM association farmers because the cattle are usually switching to stored forage or are on older pasture. Both feed stocks have lower nutrition. Thus, the farmer must be aware of the life cycle of the parasite in addition to the types of control mechanisms and costs available.

Many mineral mixes have diatomaceous earth added for parasite control. As of this time no research has proven that diatomaceous earth kills parasites. The farmer may have to resort to chemical wormers if infestation is determined. It is advisable to avoid early morning grazing because parasites tend to be more prevalent on dewy surfaces. Proper rest during parasite larval life cycles can also reduce the incidence of infestation.

Wormed cattle should be placed on clean pasture (pasture not used in the last 12 months). This will prevent reinfestation. Do not move the animals for 24 hours after being wormed to allow all dead worms to be passed. Any use of wormers results in cattle that cannot be sold as Meadow Raised.

Dung-burying beetles help disperse dung pats, reducing the environment for parasites. Free-ranging chickens also help reduce parasites by picking apart fresh dung pats, which dries the pats out faster and destroys a harbor for parasites. Drought controls parasites. Livestock in arid areas have fewer problems with internal parasites, but they are susceptible when moved to areas with heavy parasite loads. Liver flukes are present and hard to control in wet pastures.

Some individuals and some breeds show more resistance to parasitic infection than others. Selection programs can be designed to take advantage of this. Please refer to the production protocol (p.70) for more specifics on parasite control.

ANIMAL HEALTH CHECK LIST

All MRM producers should keep accurate and timely records for their animals. Following is an example of the information you may wish to record.

BIRTH MOTHER RECORD

FIRST 21 DAYS

- General Health
- Transition to Pasture
- Weaning

DIGESTION PROBLEMS

- Observe Manure
- Treat Scours

PARASITES

- Have Feces Analyzed
- Use MIG Rotational Grazing System to Reduce Parasites
- Track Larval Cycle if Parasites Are Present

GENERAL OBSERVATION

- Periodic Observation of General Health
 - Appetite
 - Water Consumption
 - Energy Level
 - Herd Acceptance
 - Maintain Records on Production Costs and Weight Gains per Animal
-

11. PROCESSING

SLAUGHTER

It is important that a producer identify a meat processing facility that is within a 50-mile drive of the farm. The facility should be a full-service USDA inspected processing plant. The plant location is important because if you truck the animal more than one or two hours the live animal will become stressed which will cause blood to flow through the muscles of the various cuts making the meat tougher. It is important to always handle the animal as gently as possible when loading and shipping to limit stress. The quicker to processing the better for the animal, the quality of the meat and the consumer.

Drifting - This is the term that is used by processors that means the producer should not feed the animal that is being sent to slaughter for at least twelve hours prior to processing. You want the stomach and intestinal areas as empty as possible. It makes the slaughter processing more efficient, helps prevent cross contamination of fecal matter and will give the producer a more truer reading of the actual carcass weight to live weight. The animal should be provided with plenty of water at all times.

USDA vs. NEW YORK STATE INSPECTED FACILITIES

THE USDA - Food Safety Inspection Service (FSIS) requires all meats that are sold through the traditional wholesale and retail channels be processed under USDA-FSIS inspection. Certain states, including New York, will allow a limited volume of poultry and exotic livestock (Venison, Ostrich, Emu, Bison, Rabbit) to be processed and sold under State Inspection only. Each producer must be careful to check the meat processing regulations prior to processing. The office in New York State can be reached at (518) 457-2456.

HACCP - This acronym stands for Hazard Analysis Critical Control Point. As of 2000, all USDA Meat Processing Facilities are required to operate under the guidance of a HACCP Plan. Each facility is responsible for writing a plan and submitting it for approval to the FSIS. The plan specifies all the precautions be taken to insure the safety of the finished meat products to the consumers. All manufacturing, wholesale and retail food operations will eventually have to operate with a HACCP plan. The government will soon be looking to have farmers begin to establish HACCP plans for their individual farm operations.

CUTS

Most full-service meat processing plants have the capabilities to process the carcass into whatever cuts the producer requires. Most plants will provide you with a standard cutting list of what they can do and would suggest. The standard basic cuts in any animal carcass will include steaks, stew, roast and ground. The portion sizes will depend on the type of animal and the meat to bone ratio. The American Meat Institute (AMI), American Meat Association and the Beef Industry Council can provide you with a great deal of resources on cutting and cuts of meats.

WRAPPING, PACKAGING

When identifying a processing facility, the types of wrapping and packaging options they offer is important. Most will provide the traditional white freezer wrap paper, which works well if you are selling carcasses for the freezer trade and the customer will be putting them directly into a freezer. The process works well but the customer cannot see the finished product which might affect your price and ability to sell the meat. Another option that is provided is called clear stretch wrap. The meat is place in a tray and wrapped with clear cellophane. Wrapping the meat cut twice allows the consumer to see product and also freezes well. Each of these wrapping options is good and fairly inexpensive. The major limitation is that the shelf life of the fresh product will only be three to five days. In most cases you want the meat frozen immediately.

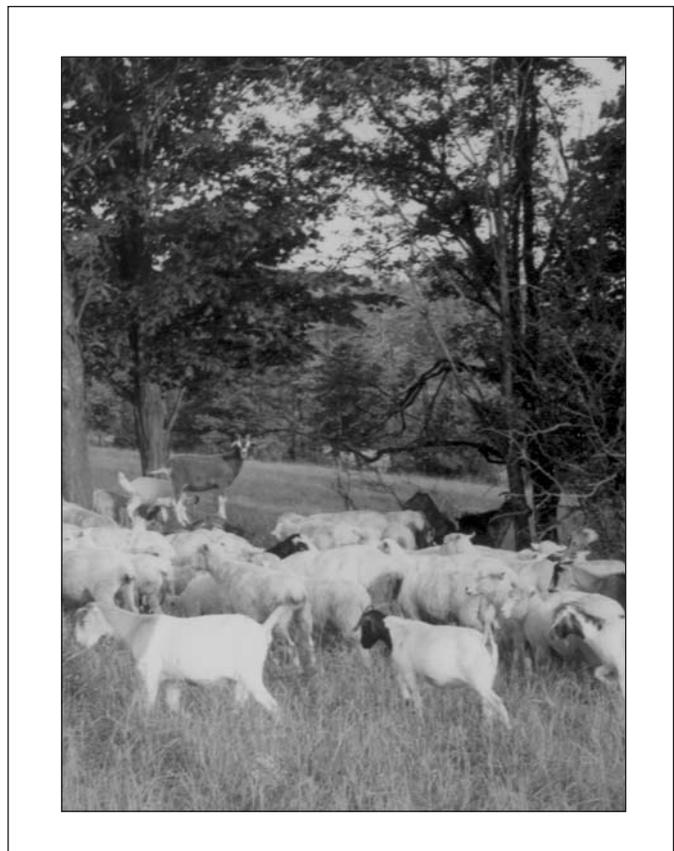
VACUUM PACKAGING - The most common method of packaging meat is to have it vacuum sealed. This method sucks out all the air in the package and allows the product to require only refrigeration for up to four weeks. It also allows the producer the option of choosing to freeze the product at any point over this time period. This gives the producer the opportunity to sell a fresh product instead of a frozen product. Another advantage of vacuum packing is that it allows the customer to see the product, thus promoting sales. The producer should be aware that the cost to have a cut vacuum sealed is between 15 to 30 cents per pound. The producer must be able to pass this cost on to the buyer.

STORAGE

Storing or holding a finished product needs to be addressed. Most small processing facilities do not have the space to keep finished product for any length of time. If additional storage space is needed, public freezers may be available; others may invest in a portable walk in freezer or chest freezer. This needs to be addressed in any business plan. Fresh meat cannot be stored without any refrigeration for more than a few hours. Meat should always be frozen after three days. Once the room temperature reaches fifty degrees bacteria will begin to quickly grow.

NOTE - Meat can be thawed and refrozen without any negative effects as long as the meat is refrozen within a few hours of thawing. The best resource book that is considered the bible in the meat technology industry and teaching trade is called

"The Meat We Eat" by Romans, Costello, Carlson, Greaser, Jones. Interstate Publishers, Inc. Fourteenth Edition.



MARKETING

Marketing is critical to the success of grass-based meat ventures. This marketing section of the manual will provide farmers with the basics on developing markets for their quality and cost- and energy-efficient meat products.

12. BUSINESS AND MARKETING GOALS AND OBJECTIVES —

THE MRM ASSOCIATION HAS ESTABLISHED THE FOLLOWING GOALS AND OBJECTIVES:

GOALS

- Recruit new farmers for the cooperative.
- Improve average sales for member farms to \$30,000 in 2002 and \$50,000 by 2005.
- A gross profit before labor and capital of \$450 per veal and \$850 per beef.

OBJECTIVES

- Support member farms to increase sales and profits by at least 20% per farm annually through 2005.
- Increase cooperative sales to a level that can sustain the cooperative by 2003.
- Increase number of small family farms raising pastured livestock in New York State.
- Increase consumer awareness of availability and healthfulness of pastured meats.
- Increase expertise among member farms in raising high-quality pastured meat products.
- Establish sales potential and goal for each product line.

THE ASSOCIATION DEVELOPED THE FOLLOWING STRATEGIES AND OPERATING PRINCIPLES TO REACH THE GOALS AND OBJECTIVES:

STRATEGIES

- The fragmented Northeast market creates a significant opportunity for MRM farmers.
- The MRM must position itself as the preeminent marketer of high margin (value added) grass-based meat products for member farms.
- The MRM will provide production support for members, thus ensuring high quality-meat products.
- The MRM will create clear production guidelines and standard operating procedures as well as training and support for members.
- A high quality/healthy sustainable image (Name/Logo/Message/Product) will be developed.
- Product lines will focus on what the MRM does best. These lines are Veal, Beef, Lamb, Poultry, Venison and Pork.
- A product distribution network to reduce transportation costs to members will be established.

13. NICHE MARKETING

Grass-based, "natural" meats represent a fast growing niche of the total market for meat in the United States. Niche markets are characterized by their small market size, limited number of producers, more complex production requirements than conventional production, and higher prices. Niche markets can be profitable if the consumer is willing to buy the product at prices that exceed those customarily paid for similar products.

The MRM members get prices that exceed the commodity prices for conventional confinement meats by 100% to 200%. These higher prices, combined with direct marketing, increase the profit margin to the farmers.

The natural meats customer is highly educated, health conscious, and is willing to spend more on natural meats for safety, quality, and environmental reasons. The annual rate of growth of 30% or more is extremely high for a specialty food product and indicates that the product is new and in demand.

Niche markets require the seller to be more service and quality oriented. Because customers are paying more, they demand more service as an extension of the product. This service may be in the form of higher/more consistent quality, packaging, information (e.g. recipes), availability, responding to problems, education on the product attributes and more. Thus, quality must to be stressed in all aspects of grass-based meats operations.

Niche farmers must adhere to the key principle of quality service: selling doesn't stop at the time of a sale. The farmer needs to provide ongoing service for customers. Farmers must be attentive to service or risk losing the customer. In fact, farmers often fail to recognize that customers demand greater service for higher priced products and they expect the farmer to meet their needs on a consistent basis. Again, service and quality are the keys to building sales and profits.

In order to be an effective niche farmer and marketer, there must be a shift from the non-customer centric commodity product focus to a quality and service centric model. This promotes customer loyalty which improves prospects for success for the niche farmer.



14. IDENTIFYING YOUR MARKET

Most entrepreneurs believe that consumers have the same passion for their products as they do. Starting a successful business would be easy if that were the case. Unfortunately, consumers can be fickle and the entrepreneur's product may not exactly take the world by storm. There are, however, several steps farmers can take before investing significant time or capital into a new product or service.

WHO WILL PURCHASE AND CONSUME YOUR PRODUCT?

It sounds simple and reasonable, but many new businesses fail to ask this question before significant investments have been made. Before we explore the various purchasers and consumers of MRM products let's define a target market, a market segment and an end user.

TARGET MARKET - Purchasers who we believe we can influence to buy our products or services.

MARKET SEGMENT - A market segment is a sub-classification of the target market. It is based on certain attributes of our product satisfying groups of buyers with highly similar buying needs and motives. Market segmentation is a natural outgrowth of a product that has been in the market for an extended length of time.

END USER - End users are the final consumers of your product. If you wholesale a meat product to a grocery store your customer is the owner/manager/buyer for the store, but that actual consumer of your product is the store's customer. Therefore, not only must you convince the store to buy your product; you must also market the product to consumers at large. A common example is breakfast cereal. The demand for breakfast cereal is created by the manufacturer, and the store is compelled to stock a product that the public demands. The MRM must market to end users in several market segments that will not be purchasing the product directly from the MRM.

The target market for natural, grass-based meats is health and environmentally conscious consumers seeking meats that are produced without hormones, antibiotics, pesticides, or confinement. These buyers are willing to pay a premium price for their meats for what they perceive as a better tasting, more healthy and nutritious product, and for meats that conform to dietary preferences.

MARKET SEGMENTS

In the case of natural grass-based meats there are several market segments.

- 1. RESTAURANTS** - While chefs and managers make the buying decision, the actual consumer, the end user, of the product is the patron. If the patron does not order the meal then the chef will not be compelled to offer the meat. This is a difficult case because the ultimate end user of the product is a very large and expensive target market to reach, whereas, targeting chefs is logistically more realistic. Restaurant sales typically require both primal and non-primal cuts of meat although occasionally they purchase whole or sides of beef. In addition, they require a consistent, year-round source of USDA inspected meat.
- 2. SPECIALTY FOOD STORES** - As with the restaurants, the buying decision is made by the store owner/manager based on end user demand for the product. Generally they purchase whole, sides, cut up or ground. Specialty food stores also prefer a year-round, consistent, USDA inspected supply. They tend to purchase in low to moderate volume. Product display and packaging must differentiate your product from the competition.
- 3. FARMERS' MARKETS** - This segment includes buyers who are compelled to buy a broad range of high quality specialty products perceived to be produced using environmentally and ecologically sound practices and produced by local small farm businesses. Farmers' market customers are seeking the convenience of one-stop shopping for these items. A great advantage of selling at a farmers' market is that farmers sell directly the customer and thus increases profit margins. The purchase volumes tend to be lower and the farmer must devote time to direct selling at the farmers' market.

4. ETHNIC - This segment includes buyers of meat for religious purposes and to satisfy cultural food preferences. In order to serve the ethnic market, farmers must produce to the particular specification of the targeted ethnic group. This segment can be profitable because the customers are often more willing to pay a premium. However immigrant purchase practices may also be driven by price. In the ethnic market segment most sales are event based, therefore, the farmers must plan their production schedules to coincide with ethnic and religious holidays. In some cases, farmers may be able to sell live animals directly on the farm to ethnic customers. In this case both slaughtering and shipping costs are eliminated resulting a potentially higher profit margin to the farmer. Volumes are dependent on proximity to ethnic market and competition from other suppliers. The farmer should expect to build a long-term relationship with more service for the ethnic market segment.

5. CHAIN GROCERY STORES - Chain grocery stores have increased shelf space dedicated to satisfy the increase in demand for specialty food items. The MRM has not penetrated this segment due to uneven year round production and their premium pricing structure. Grocery stores require consistent, USDA inspected supply and order in large volumes.

6. ON-FARM SALES - Several MRM farms sell meat products to local consumers and agro-tourists from the farm. On-farm sales generally serve local customers through word of mouth or local advertising. One enterprising member of the MRM, a family operation, has increased on-farm sales through a web page, newsletters and their annual "Family Farm Days" event. Volumes vary but the farmer has greater production flexibility if the local customers demand what is available. Because the farmer is direct-selling small volumes to individuals, the time commitment to sales is significantly higher per volume than in the other segments. But, the profit margins of on-farm sales is high because of the savings realized when "avoiding the middleman." If local customer loyalty is created then the farmer will have a consistent customer base. Internet sales are in the same segment although the product is shipped via carrier to consumers in any location. In the case of Internet sales, the farmer must communicate to the customer when orders can be made and shipped. Direct sales to the public require USDA inspection.

7. FREEZER SALES - Here, the live animal is sold to the customer prior to processing. Because the customer "owns" the animal, this method does not require USDA inspection from meat processing facility. The farmer contracts for a set per pound price with the customer. While this market has potential, it does have limits because the customer must have freezer space for the cut up product. In addition, it is in opposition to the current trend of a growing number of consumers who demand prepackaged, convenience foods. However, on the plus side for farmers, these types of sales require the least sales and service effort from the farmer.

Each of these segments attracts different buyers looking for particular product attributes. For example, chefs tend to look for fresh meats that are consistent in quality and taste. They seek meat products that are easy to prepare, available in saleable cuts, and will generate a profit. The patron of the restaurant has needs that vary such as taste, ambiance, the perceived benefits of paying a particular price, and, for some, supporting small, local farms, etc.

RETAIL OUTLETS

There are a variety of considerations when marketing to retail outlets. Retailers may accept whole carcasses or demand precut, prepackaged meat, depending on whether or not they have a full-service meat department equipped to break whole carcasses. Many customers prefer fresh meat, but it is often beyond the reach of grass-fed meat producers to supply enough volume on a consistent basis. It is also difficult to have a constant supply of slaughter-ready stock, given the seasonal nature of grass-based production in our area. Meat has a 10-14- day shelf life from the time of actual slaughter (not counting any aging time). As a result, because locally grown and slaughtered meat travels less distance and is delivery to the consumer in a short time it will have a longer shelf life in the retailer's meat case than meat available from more traditional sources. This a great selling point if you are able to offer fresh meat.

Another consideration when selling to retail outlets is their significantly mark-up over the wholesale price. Some may be unwilling to buy meat at the premium price that grass-based meat farmers seek for their product. It is best to consider this mark-up before producing for the retail outlet segment to ensure that the sale is profitable. Retailers also do not typically contract with food vendors, and may refuse shipments or cancel orders on short notice.

PRODUCT-DRIVEN VERSUS MARKET-DRIVEN

An important distinction in identifying your market is to ensure that your product is satisfying the needs or providing benefits to the target market. Often entrepreneurs believe that the product will "sell itself" because it is so good. This distinction is known as product-driven, versus market-driven marketing.

Market-driven marketing identifies the need and then produces a product to meet these needs. Product driven marketing introduces a new product to the market with no clear need established. Product-driven is generally higher risk and more expensive because the business has to create the need and demand for the product. Creating a need requires an extensive promotion campaign, which is an expensive endeavor.

MRM's products are demanded by the market due to numerous factors including heightened consumer awareness of industrial meat quality deficiencies, mad cow disease, foot and mouth disease, and the poor sanitary records of large-scale meat producers. Customers are increasing their purchases of safer, healthy, nutritious, environmentally sound, and tasty meat products.

MRM's meat products are, however, differentiated from traditional meats based on production inputs, product appearance, availability, and a different tasting product.

FOCUS IS IMPORTANT

Focus is a critical factor in successful marketing on specialty agricultural products. New entrepreneurs need to be careful and not try to enter too many market segments at once. Being focussed allows farmers to better manage inputs and determine the product attributes necessary to sell to the desired segment without the burden of having conflicting product attributes.

15. RESEARCHING THE MARKET, DETERMINING THE MARKET POTENTIAL AND BUYER BEHAVIOR

After selecting a target market and one or more market segments, the new farmer needs to:

1. assess what product attributes are necessary,
2. determine the buyer behavior critical in making a purchasing decision,
3. assess if the potential customer will select your product from competing producers and brands,
4. and, most importantly, determine if there is a large enough market to make a profit.

Research is necessary to determine the items listed above. However, many entrepreneurs loathe research for the simple reason that it may shatter the dream of launching a new product. Research in most cases will reduce the risk for the new businessperson.

There are two major categories of research: primary research and secondary research.

PRIMARY RESEARCH

Primary research is gathered by producer or the association to develop marketing strategies. The most typical forms of primary research are surveys or focus groups. To conduct a focus group potential customers are brought together and asked to describe their beliefs and feelings when presented with a prototype or sample of the product. While primary research usually results in useful information, it can be time consuming and expensive for a farm entrepreneur.

SECONDARY RESEARCH

Secondary research is data gathered from other sources including the US Census, NY Ag and Markets, the USDA, periodicals and other published sources. While secondary research may not be tailored specifically to a particular case, it can give a reasonable overview of the trends in local markets. Occasionally, one may find very specific information if entering an already established market. Secondary research is significantly cheaper and easier to access.

METHODS OF RESEARCH

SURVEYS

A well-designed survey can give the entrepreneur invaluable information on what the public is looking for in meat products. The survey needs to be in a format that can be tabulated and scored rather than exclusively open ended questions like "what is your favorite meat?"

The survey must be given to a random sample and of sufficient sample size for the best results. Surveying friends and family will not work because they will either be predisposed to a familiar product or afraid of hurting feelings.

A typical question may be:

Do you believe that meats free from hormones and pesticides are healthier than meats you buy in the store?

5) Strongly Agree 4) Somewhat Agree 3) Indifferent 2) Disagree 1) Strongly Disagree

After tabulating the question, if the average score is only 1.5 in a given market segment, it would be apparent that the product benefit of "free from hormones and pesticides" is not important in the buying decision.

A recent consumer survey indicated the following: The typical consumer in an area eats five to six meals a week with meat. 83% know the difference between grass fed and conventional meat products. The respondents ranked the importance of following qualities on a scale of 1 (do not agree) to 5 (strongly agree).

The following are the rankings of these qualities:

	Rank in Importance	
Hormone Free	4.52	3
Antibiotic Free	4.38	5
Naturally Raised	4.34	6
Consistent Quality	4.85	1
Reasonably Priced	4.48	4
Pesticide Free	4.75	2

These results show consumers are more concerned about pesticides than antibiotics or how the animals are raised although they continue to believe that quality is most important.

We learned that 75% have served pastured meats at some time and of those who serve them have approximately two to three meals per week. 96% want to purchase meats that are free of pesticides, antibiotics, and hormones with 83% preferring cuts and 79% preferring fresh.

Another interesting result that tends to support the on-farm and farm market sales channel success is that 92% are willing to buy on a seasonal basis. These products are seen as specialty ad hoc items rather than staples.

The average price consumers are willing to pay for meadow meats are \$6.36/lb. for veal, \$4.31/lb. for beef, \$2.92/lb. for chicken, \$3.90/lb. for pork, \$7.00/lb. for lamb, and \$5.50/lb. for goat. However, only 15% of those willing to buy would buy pastured raised veal, 65% beef, 60% chicken, 44% pork, and 8% each for lamb and goat. Our local consumers are most interested in beef, chicken, and pork which corresponds to the national trends in per capita consumption of meats. Lamb and goat sales are primarily for the custom processed ethnic markets.

While the prices are somewhat higher than conventional retail prices many consumers stated that specialty products like these should command prices per pound on par with fresh fish (\$8.00 - \$9.00 per lb.). Our experience is that most MRM farmers are direct selling fresh cuts at significantly higher retail prices.

FOCUS GROUPS

A focus group is a gathering of typically four to eight people in a controlled setting where participants experience some of the attributes of your product. For example you may assemble the group to watch a chef prepare a meat dish with your product followed by a tasting. You would then interview the group on their perceptions of the process and the taste of the product to discover how they feel about the product. Focus groups are particularly useful in defining positive and negative product attributes. They are also significantly cheaper than surveys.

MARKET POTENTIAL

The market potential for a product is calculated based on market research. It is usually an estimate based on primary and secondary research to determine how much of a particular product will be consumed, what the current growth per year of the product can be expected, and how much customers are willing to pay for the product.

For example, market research indicates that the average retail price for pastured poultry in South Central New York State is \$2.25 per pound. The selected market is the farmers' market segment. Further research shows that the market has 500 visitors weekly who buy 100 lbs. of chicken. Therefore the per capita consumption is .2 lbs. per visitor.

If the MRM farm attends two new markets with 2,000 visitors, his market potential would now be .2 x 2,000 or 400 pounds per week. Similar buyer characteristics will be needed to expect this outcome.

If a farmer is selling 10,000 pounds per year or \$22,500, and people are consuming 10% more pastured chicken per year and food prices are increasing at 2.5% than the market potential and revenue for next year can be reasonably estimated.

10,000 lbs. x 10% = 1,000 lbs. of New Sales

Total Sales = 10,000 lbs. + 1,000 lbs. = 11,000 lbs.

Price Increase = \$2.25 x 2.5% = \$.06

New Price After Increase = \$2.25 + \$.06 = \$2.31

Total Potential Sales for Next Year = 11,000 lbs. x \$2.31 = \$25,410

The following is a chart depicting the 20-year trends in per capita meat consumption in the US.

AVERAGE ANNUAL PER CAPITA CONSUMPTION OF MEAT

Year	Beef (lbs)	Pork (lbs)	Veal (lbs)	Lamb (lbs)	Total Red Meat (lbs)	Chicken (lbs)	Turkey (lbs)	Total Poultry (lbs)	(Retail Weight)
									Total Red Meat and Poultry (lbs)
1980	76.6	57.3	1.5	1.4	136.7	46.6	10.3	58.91	96.4
1981	77.3	54.7	1.6	1.4	135.0	47.6	10.6	60.8	196.3
1982	77.0	49.1	1.6	1.5	129.2	47.9	10.6	61.0	190.7
1983	78.7	51.8	1.6	1.5	133.6	48.2	11.0	61.8	195.4
1984	78.4	51.5	1.7	1.5	133.1	50.3	11.0	63.3	196.9
1985	79.2	51.9	1.8	1.4	134.3	52.1	11.6	65.6	200.4
1986	78.8	49.0	1.8	1.4	131.0	53.2	12.9	68.1	199.6
1987	73.9	49.2	1.5	1.3	125.9	56.3	14.7	73.1	199.4
1988	72.7	52.5	1.4	1.4	128.0	56.4	15.7	74.6	202.3
1989	69.3	52.0	1.2	1.5	124.0	58.7	16.6	77.0	201.7
1990	67.8	49.8	1.1	1.5	120.2	61.0	17.6	80.3	212.8
1991	66.8	50.4	1.0	1.4	119.6	63.8	18.0	83.3	214.8
1992	66.5	53.1	1.0	1.4	122.0	66.8	18.0	86.2	220.7
1993	65.1	52.4	0.9	1.3	119.7	68.6	17.8	88.2	221.3
1994	67.0	53.0	0.9	1.2	122.1	69.9	17.8	88.8	225.0
1995	67.5	52.4	1.0	1.2	122.1	69.8	17.9	88.2	210.3
1996	67.7	49.1	1.2	1.1	119.1	71.7	18.5	90.2	209.3
1997	66.9	48.7	1.0	1.1	117.7	72.9	17.6	90.5	208.2
1998	68.1	54.3	0.8	1.0	124.2	75.9	17.7	93.6	217.8
1999	69.6	54.7	0.8	1.0	126.1	79.2	17.8	97.0	223.1
2000	69.5	53.8	0.8	1.0	125.1	82.1	17.9	100.0	225.1
2001*	66.7	54.1	0.8	1.0	123.5	84.1	17.9	102.0	225.5
Market Population	9,739,845								
Total Consumption (1,000 lbs.)	649,648	526,926	7,792	9,740	1,202,871	819,121	174,343	993,464	2,196,335
Natural Market at .1%	649,648	526,926	7,792	9,740	1,202,871	819,121	174,343	993,464	2,196,335
MRM Price per Pound	\$1.50	\$1.45	\$2.00			\$2.25	\$2.25		
Total Value	\$974,471.49	\$764,042.14	\$15,583.75			\$1,843,022.25	\$392,271.75		

Source: USDA

The market in Eastern New York, Central New York and New York City (excluding Staten Island) has 9,739,845 residents. At 0.1% market penetration this translates to a total market potential for the MRM of \$3,988,391 for pastured veal, beef, pork and poultry. The 0.1% penetration is reasonable as organic/specialty foods are now commanding 2% of the total food market with natural meats annual growth rates of 30%. The MRM will need approximately 9% of this market to reach \$350,000 in sales.

While per capita consumption of beef, veal and pork have all declined since 1980, consumers are eager to find new, healthier sources of meat products. This is especially important in beef where concerns of foot and mouth and mad cow disease are prevalent. Grass-based production virtually eliminates the potential for mad cow disease.

PRODUCT ATTRIBUTES

Attributes are critical in fashioning how one markets the product to a particular target market or market segment. The attributes that define the MRM product and its benefits need to be defined before marketing the product.

MRM meats have the following attributes:

- High quality
- Consistent taste and texture
- Less marbled appearance
- Leaner
- Nutritionally superior
- Ecologically sound
- Humane husbandry
- Premium price
- Delivered fresh or frozen
- Sold live, dressed or cut to order
- Can be packaged

DEFINING THE BUYER AND THEIR BEHAVIOR

The following are the characteristics to consider after researching the potential market to more fully understand who our customers are and what influences or motivates them to purchase.

DETERMINING THE BUYER CHARACTERISTICS

1. Location

Where are target customers and can farmers sell and distribute product to them?

2. Demographics

What is the typical end user like?

3. Lifestyle

Does buying MRM product support a particular type of lifestyle? Can these attributes of the lifestyle promote the MRM product?

4. Buying Center (who buys the product is not always the product end user)

Make sure we differentiate between the end user and the actual buyer.

5. Customer Turnover (how many repeat purchases expected per year)

Repeat business is key to success. What are the service requirements?

6. Willingness to Buy

Customers are willing to buy if the product:

- Is compatible with their values
- Fits the customer's social, economic, and convenience expectations
- Does not have usage problems
- Is not too risky

Customers buy products that satisfy their needs. Periodic problems must be serviced.

7. Ability to buy

The farmer needs to create a buying opportunity that fits the customer's ability to buy.

For example, the purchase and preparation costs must meet their expectations and the customer must be able to get the product easily.

8. Selective Demand - Demand for a specific brand or supplier.

Customers want clear identification that they are purchasing the correct product. The MRM brand reduces risk and facilitates the buying decision. The farmer needs to identify the product benefits versus any alternative products to help customers make the purchase decision.

MRM products have clear benefits over conventional confinement meats and the customer needs to be aware of this to make the purchasing decision.

WHY ARE OUR CUSTOMERS BUYING?

MRM customer feedback identifies consistent product quality versus other natural meats and conventional meats as an important factor in the purchasing decision. As indicated in the survey they are also buying our meats to avoid pesticides, hormones, and antibiotics. Product availability is also cited as a key component in the purchasing decision.

SELECTING THE MRM BRAND

The MRM is in the process of creating a brand using a consistent product message, image (logo), product quality, pricing and availability. Brand loyalty and awareness can be powerful motivators for repeat purchasing and to reduce the risk of purchase for new customers. The MRM cooperative gives producers the ability to achieve brand awareness through collective marketing and resource sharing.

16. PROFITABILITY ANALYSIS

Armed with an estimate of the market (sales) potential, one can calculate product profit. This analysis will also show the effect of different prices, production costs, and sales volumes on product profitability.

BREAK-EVEN ANALYSIS

A break-even analysis shows at what volume of production and price total revenue equals total costs. To calculate a break even, an understanding of the two types of costs: fixed costs and variable costs is needed.

FIXED COSTS

Fixed costs are expenses that must be paid no matter how much is produced. Examples of fixed costs are: cost of buildings and equipment, interest on debt, management salaries not related to production, administrative costs unrelated to production, rent, marketing, etc. Farmers must account for all fixed costs. Repayment of capital invested is a key component of a successful venture.

VARIABLE COSTS

Variable costs are directly related to production and for MRM members include: feed, bedding, pasture preparation, vet and medical, electricity for fence, direct labor for production, slaughtering, hauling and any other direct materials used in production.

Once the fixed and variable costs have been determined and the break-even can be calculated.

The following is an example of a break-even analysis for a veal calf:

ANNUAL FIXED COSTS

Building/Land	\$ 1,250 (12 acres @ \$1,000 per acre spread over 10 years)
Equipment	\$ 1,000
Farm Manager Salary	\$ 2,000 (based on 5% percent of time dedicated)
Office Expense	\$ 500
Telephone	\$ 600
Marketing Expense	\$ 1,000
Total	\$ 6,350

VARIABLE COSTS (Using Midpoint of Low Input Veal Model from Penn State and Iowa State Universities; all figures are per animal)

Feed/Vet	\$ 78
Electric	\$ 7
Direct Labor	\$ 338 (\$15 per hour)
Total	\$ 423

With this data we can determine the production necessary to break-even.

$$\begin{aligned} \text{Break Even Point} &= \frac{\text{Fixed Costs}}{\text{Selling Price per Animal} - \text{Variable Costs per Animal}} \\ &= \frac{\$6,350}{\$ 525 - \$ 423} \\ &= 62 \text{ Head to Break Even} \end{aligned}$$

In determining the break-even point the following assumptions were made:
\$2.50 Average Price per Pound and 210 Pounds per Carcass

It is important to note that in the event of significant changes in prices, variable or fixed costs will have a large impact on the break-even point. For example, an increase in price to \$2.75 per pound would lower the break-even point to 41 head. This example is only for demonstration and is not indicative of the costs one may experience on a given farm operation.

One final consideration: when production and sales exceeds break-even, then the farm business is profitable. It is important to include all production labor in the calculation even though it may not be a direct cash expense.



17. COMPETITIVE ANALYSIS

Once the target market has been defined, a market segment (if available) chosen, and an indication that the business may be profitable, you can then analyze the competition for the product and market.

The competition encountered will be specific to the market segment chosen. The primary competition in the restaurant segment is

- 1) other natural meat purveyors and
- 2) high quality conventional meat producers and any other meat products that may be substituted.

In the case of a farmers' market, competition is other vendors at the market selling competing products. It is very important to understand the competition's product offerings and to differentiate the product from the competitor's using the attributes and benefits unique to the product that are attractive to the target market and or market segment.

For example, through research it may be determined that customers want heat sealed packaging rather than Styrofoam and cellophane. If the competition is using the cellophane packing, the heat-sealed meat seller can communicate to the customer how the sealed product maintains freshness and quality using more technologically advanced packaging, etc. The presentation of your product is very important in differentiating it from the competition.

MARKET SHARE

The primary measurement of one's position versus the competition is market share.

Suppose sales are \$500 per week at a farmers' market and the competition is determined to be selling \$500. Each competitor has a 50% share of the market. If a new farm begins selling in the market both will likely have a decline in market share unless buyers begin to purchase more per capita. Although market share is most relevant for larger corporations, the small size of the natural meat market and MRM's cooperative presence in the market indicates that MRM has a significant (greater than 5%) market share in New York State. When compared to the total meat consumption market, though, MRM's share of market is insignificant.

COMPETITIVE ADVANTAGE AND BARRIERS TO ENTRY

Products have a competitive advantage if they satisfy a consumer need that competing product cannot. If the consumer demands hormone free meat, then a natural meat product has a competitive advantage that needs to be communicated to the purchaser and end user of the product. The most successfully marketed new products have a clear competitive advantage.

The farmer always has to consider the barriers to entry of competing farms for the markets.

Typical barriers to entry include:

- 1) capital equipment required,
- 2) cost of land and buildings,
- 3) general start up costs (working capital),
- 4) technical expertise,
- 5) regulations,
- 6) marketing,
- 7) and experience with similar business.

The barriers to becoming a producer of natural meats for an existing farm are very low, therefore, MRM members should constantly monitor any new natural meats farms and identify to their customers the advantages of being a MRM customer before losing market share. The higher your product quality is and the more

innovative your production and product are the higher the barriers to entry.

SUBSTITUTE PRODUCTS

When marketing a product, the farmer must also be aware of the trends in the target market for substitute products. A substitute product is one that has few of the product attributes of the original but satisfies the benefits sought by the consumer. Tofu has long been a meat substitute product popular in vegetarian dishes. The farmer must always be aware of the trends in their markets to protect their market share from substitutes.

There has been a decline in per capita red meat consumption from 137.6 lbs. in 1980 to 123.5 lbs. in 2001. Per capita consumption of poultry increased over the same period from 58.9 lbs. to 102.0 lbs. per capita. Total meat consumption actually increased from 196.4 lbs. to 225.0 lbs. per capita with poultry consumption accounting for the increase. Clearly, the perception of lower fat, ease of preparation, and introduction of poultry in the menus of short order (fast food) restaurants resulted in the decline in beef consumption and the increase in poultry consumption.

Poultry is a significant substitute for red meat and cannot be ignored in the education of consumers on the attribute of MRM's natural meat products.

GENERAL COMPETITIVE MARKET

The natural meat wholesale market is characterized by several large, cooperatives in the mountain states and on the West Coast serving large regional and national markets. In addition, one cooperative similar in scope to the MRM is located in northeast Iowa and a large national branded product cooperative is located in Wisconsin. The primary large-scale national distributor of natural meats in the Northeast is Eberly Poultry in Lancaster, Pennsylvania. These producers generally have many member farms, in most cases have branded products, year-round sales and distribution, and well-established criterion for member production specifications and quality.

Membership is denoted by a farmer's willingness to abide by the guidelines set by the cooperative concerning growth hormones, antibiotics, feed, etc. In return the farm gains access to a large market at attractive prices versus traditional livestock production.

The larger cooperatives also tend to focus on less than five meat product lines.

EXAMPLES OF LARGE SCALE OPERATIONS (PRICES ARE EXAMPLES FOR COMPARISON)

- Coleman's Natural Products, Denver, CO. National wholesaler of packaged, branded natural meats. Consortium of ranchers based on specification.
- Eberly Poultry, Lancaster, PA. Certified organic, private label poultry producer. National market. Also sold under D'Artagnan and Bell and Evans. Direct sales only from on-site store. \$1.29/lb. from the store.
- Maverick Ranch/High Meadows Beef, Denver CO. Primarily a national natural beef distributor. Buys from over 90 ranches willing to produce based on their specification. Product in 2,400 markets nationwide. No direct sales.
- Niman Ranch, Marin County, CA. Network of ranches from Idaho to California. Processed in Oakland, CA and Nampa, ID. Sold in SF market until recent national distribution through specialty retailers. Branded identity. Direct sales from on-line store. Pork Chops \$14.00/lb. Ground Beef \$6.00/lb. Lamb \$6.50/lb. Fedex Overnight at \$1.00 per pound.
- Northeast Iowa Specialty Meats, 319-443-2117. Group of farmers in NE Iowa. Chicken, Beef, and Pork. Direct sales from on-line ordering system. Shipped UPS 2nd Day Air. Chicken \$2.10/lb. Ground Beef \$3.60/lb. Roast Beef \$3.07/lb. Pork \$2.50/lb. All retail prices. General market area

from Chicago, IL. to Ames, IA.

- Oregon Country Beef, Box 50, Brothers, OR 97712 (541) 576-2455. Cooperative of 27 ranches in Eastern Oregon. Strict quality guidelines. Serves Pacific Northwest market. No direct sales.
- Organic Valley™ Family of Farms (Valley's Organic Meats), CROPP Cooperative, 507 West Main Street LaFarge, WI 54639. Cooperative of 30 large producer farms. National wholesaler of packaged, branded "organic" meats. No direct sales.

EXAMPLES OF SMALL SCALE/SINGLE FARM OPERATIONS (PRICES ARE EXAMPLES FOR COMPARISON)

There are many smaller, typically single farm, natural meat producers throughout the country serving local markets through direct sales or Internet sales. These farms due to their lack of scale cannot always offer product on a year-round basis. Small-scale operators usually ship second day air in iced packaging with a handling charge in addition to the shipping charge.

- Wise Acres Farm 23 4½ Ave. Clayton, WI 54004. Natural chicken and beef. Chicken preordered at \$2.25/lb. Beef prices on a quoted basis. All retail prices.
- Woolly Hill Farm of Vermont, 2695 Rattlin Bridge Road Bridport, VT 05734-9533 802-758-2284. Organic lamb at \$2.40/lb. cut. Shipping extra.
- Homestead Healthy Foods, 1313 West Live Oak Street, Fredericksburg, TX 78624 1-888-861-5670. Chicken \$2.81/lb. Ground Beef \$4.06/lb. Roast Beef \$4.48/lb. average. On-line ordering. Shipped 2nd Day Fedex with a \$12.00 boxing fee.
- Van Wie Natural Foods, 6798 Rt 9, Hudson, NY 12534. Single Farm. Products include pork, beef, free-range chicken and turkey, lamb, seafood, and beefalo. Ships throughout the US via UPS. Chicken \$2.75/lb. Ground Beef \$3.99/lb. Pork \$3.75 - \$10.00/lb. On-line order form available.
- Wyoming Natural Products Co. PO Box 962, Newcastle, WY. Two ranch grass fed meat producer. On-line sales of beef. Ground beef \$4.00/lb. \$5.00 handling fee. Shipped Fedex 2nd Day. Free for shipments over \$150.00.

The competitive market in New York State is characterized by many small producers selling in limited local markets or via the Internet. There appears to be very few if any established distribution channels or routes sales of natural meat products. Once these channels begin to be established farmers should expect a rapid increase in potential competition due to the very low barriers to entry into the market.

18. MARKETING STRATEGY - THE MARKETING MIX

The MRM farm can now create a marketing strategy and more specifically detail the marketing mix. The *marketing strategy* should have the following components:

- Objectives
- Goals (Quantifiable)
- Strategy
- Implementation (Marketing Mix)

The *marketing mix* includes the following components:

- Product
 - Price
 - Promotion (including advertising)
 - Placement (includes distribution channel specific to the market segment)
-

The following example shows a strategy to introduce a new natural beef product into the specialty food store market segment:

OBJECTIVES

1. Diversify farm production, revenue and income.
2. Enter growing agricultural product market.
3. Use underutilized existing capital resources.
4. Take advantage of cooperative marketing using MRM.

GOALS

1. Revenue in year one of \$20,000 (40 beef) increasing to \$30,000 (60 beef) in year two.
2. Break even production in year one and \$3,000 profit in year two.

STRATEGY

1. Produce high quality, hormone free, pesticide free, antibiotic free, grass finished beef for high end specialty food store sales taking advantage of the growing public awareness of unhealthy practices in confinement beef production.
 2. Differentiate product on aforementioned attributes as well as locally produced by small farms and unique natural taste.
 3. Educate consumers on these attributes to overcome reluctance to purchase based on expectations of taste, mouth feel, preparation, appearance, etc. and to instill brand awareness with MRM logo.
 4. Position product as the highest quality offering with packaging that reinforces the high quality image.
 5. Market product in Hudson Valley, NY corridor based on population characteristics and large concentration of specialty retail food stores.
-

MARKETING MIX

PRODUCT

The product is natural, grass finished beef with nutritional content equal to or exceeding conventionally produced beef. The product will be packaged in a unique container prominently displaying the MRM logo, product attributes, nutritional information, and any other USDA requirements. Cuts of meats will be determined by sales call. The product will be consistent in taste, appearance and general overall quality and will be shipped fresh to market either cut up or in carcass form depending on customer demands.

Research indicates customers expect similar packaging to mass market meats. The farmer should expect to Cryovac package all cut up meats except if the store prefers fresh without packaging. The farmer must also abide by the labeling requirements set by the Food Safety Inspection Service of the USDA. There are many restrictions on the types of claims that may be used on labels, so it is necessary to have a label that conforms to the standards.

To further brand awareness and reinforce product consistency, the MRM logo is used on all packaging and publications for the test case:



PRICE

This high quality position will be priced at an average of \$2.75 per pound wholesale. Prices per cut will be at the high end of competitive analysis with national natural producers.

PROMOTION

The farm/cooperative can promote using the following:

- Public Relations
- Sales Support Material for Customer Distribution
- Advertising in Print Media in Distribution Area
- Point of Sales Displays

A promotional budget needs to be established.

PLACEMENT

The MRM currently drop ships fresh product in 70 lbs. Styrofoam packaging via UPS. Larger volumes such as sides of beef necessitate shipping via truck on an established route. The MRM has several trucking firms available for these shipments.

19. SALES MANAGEMENT AND DISTRIBUTION

The MRM cooperative currently contracts with an outside sales representative to sell product. Inside sales are though an authorized agent who is a member farm of the MRM. The MRM does not currently charge farmers for farm direct sales.

Sales management is somewhat procedural and typically includes the following components:

SALES FORECAST

The sales representatives and member farms estimate the next year's sales based on research, customer interviews, and general market trends. Each farm is then responsible for production plans to meet the sales goals.

SALES GOALS

The sales representatives/agents are given sales goals based on an analysis of the forecast. The reps/agents are then responsible for periodic reporting indicating the progress towards the goals. Incentives for certain types of sales are also included in the setting goals. A sales budget is completed upon acceptance of sales goals.

SALES CALLS AND TERRITORIES

Sales reps can keep call logs and meet call frequency goals set by management. Expense logs are also necessary to control the costs associated with the sales effort. Management must also control the content of the message used by the rep for consistency.

The sales effort of the MRM is divided into geographic territories for outside and agent sales. On-farm sales are not included.

CUSTOMER SERVICE

Customer service involves rectifying problems with billing, shipping, product quality, and all other issues related to order processing and fulfillment. Customer service is provided by the rep, farmer, or an agent of the MRM.

MOTIVATION

The rep/agent must be motivated to sell the product. Motivation is provided by an understanding of the product and the benefits supplied to the purchasers and end users. Thus, training is an integral component for an effective sales rep. Reps also have an innate sense of achievement. The goals and expectations of the rep must be realistic.

Motivation is also stimulated by a compensation package that provides incentive to sell the product and support for the sales rep in general. One must be careful to not cannibalize other product sales or profits using an incentive that favors low margin products.

PRODUCT AVAILABILITY

A sales rep can only succeed if they have the product available to back up their claims on the product attributes and benefits to the customer. A customer will not be satisfied if they believe that they have been misled or sold substandard product. Farm products must have consistent quality and be delivered on-time.

DISTRIBUTION

The MRM ships most product via 70 lbs. Styrofoam packaging via UPS. Volume purchases larger than 70 lbs. typically require shipping via truck.

There currently is a small specialty foods distribution network with routes to Albany, NY and New York City operated by Catskill Family Farms Cooperative in Stamford, NY. Product can also be shipped via LTL (less than truckload) refrigerated carrier.

Many farmers chose to deliver their own meat. The farmer should account for all the costs associated with delivering (including his/her time) and the expected delivery charge and compare to using an outside trucking firm before undertaking delivery.



PRODUCTION PROTOCOL (REGULATIONS)

MEADOW-RAISED LIVESTOCK PRODUCTION PROTOCOLS (APRIL, 2001)

The following protocol was developed to allow for the differences between individual Meadow Raised Meat farms, and to allow the farms to produce a standardized quality product, with the common goal in mind of maximizing the health of the animals, the environment, and our end-products. Meadow Raised Meat farms are grass-based systems which seek to raise healthy animals and maximize good environmental impacts from sound management decisions.

The management practices of the Meadow Raised (MRM) program are intended to assure both the quality of the end product and the quality of the life for the livestock, while also promoting good stewardship of the land, and a pleasant lifestyle for the farmers. While most items may be considered "suggested" practices, to be applied where feasible and practicable, some take the form of requirements or prohibitions, since they touch on the essence of what is deemed "Meadow Raised" to the customer.

Additionally, it should be recognized that many of these practices are related, supporting and being supported by each other. For instance, the prohibition against the use of antibiotics in livestock sold through the MRM program nearly requires the use of active rotational grazing, since close confinement of livestock frequently results in an increase in disease without such treatment. Likewise, high levels of grain in ruminant livestock causes a marked decrease in the utilization of forage due to changes in rumen bacteria, so to be truly "Meadow Raised", rotational grazing must be accompanied by limited grain feeding.

Livestock can be marketed as "Meadow Raised" when they meet the following criteria:

1. Appears healthy in all regards;
 2. Has been owned and managed on a MRM member's farm for at least 90 days;
 3. A vast majority of their diet was comprised of rotationally grazed fresh or stock-piled forage;
 4. Minimal grain was used to supplement the available forage;
 5. No antibiotics or hormones have ever been given to the animal while it has been on the MRM member's farm;
 6. Livestock was sent for processing directly from pasture;
 7. Attention was given to minimizing stress for the animal, during their months of growing, transportation, and processing.
-

In addition to drafting a protocol to assure the highest quality standards for our product, the MRM protocol was drafted with an intention to meet the requests from our current and future customers. The market niche identified for MRM sales volume has expressed the following desires for their food:

- Grass-based management system
- No antibiotics
- No hormones
- High quality
- Great taste
- Locally produced on family-owned and operated farms
- Humane animal treatment

- Pesticide free
 - In many cases, year-round supply.
-

CLASSES OF LIVESTOCK

The MRM Livestock Production Protocols apply to the following classes: beef, veal, pork, lamb, goat, layers, broilers, deer, rabbits, and turkeys.

RAISING MRM LIVESTOCK BORN ON A MRM FARM

Experience indicates that owning both breeding stock as well as market stock, where the farmer can control the gestation and the first few weeks of life, is an ideal situation. Providing the best possible prenatal care and nutrition reduces the opportunity for sickness or disease, and thus reduces the chances of having to treat life-threatening illnesses.

PURCHASED LIVESTOCK

Purchased livestock includes livestock bought for raising and later resale as Meadow Raised, as well as animals purchased to act as brood animals to livestock that will eventually market as Meadow Raised. The main concern with purchasing animals is the lack of knowledge about their health status and previous treatments with antibiotics and/or hormones. When purchasing an animal destined for slaughter, a MRM farmer must obtain a signed affidavit from the previous owner that the animal had not received growth hormones or antibiotics to be able to market the animal marketed as a "Meadow Raised" product. This will allow MRM to assure its' customers that our meat is free of growth hormones and antibiotics. The affidavit should also record any other health and medical treatments the animal has received.

In addition to the affidavit, the minimal records to keep for purchased livestock include the animal's permanent identification (excluding poultry), the date of purchase and source of the animal.

• SUGGESTIONS FOR BUYING NEWBORNS

Newborns should be alert, active, and feel heavy for their size. They should be clean and housed or pastured in clean surroundings, with appropriate shelter for the weather conditions. Auction barns are considered a poor source of newborn animals, as little or no information is available about the source of the animal or about the environment where it was born. Also, with the stress of being crowded into a transporting vehicle and being put through an auction ring one would expect more health problems with this animal.

Other livestock on the premises should appear healthy and clean. Inquire into health problems experienced on the farm - both general issues and anything particular about the newborn you are buying. Inquire about vaccination status of the dam, and if any antibiotics or vaccinations have been given to the newborn or the dam. Navels should have been dipped in 7% iodine (note the brown stain around the navel) and the umbilical cord should be dry. Inquire about the quantity and quality of the colostrum that has been fed to the newborn.

• BUYING WEANED LIVESTOCK

Look for vigorous, alert, healthy looking livestock that are in good flesh and coat. Inquire about previous health problems and treatments, as well as what the animal is currently eating. Try to obtain a small amount of their previous feed to mix into the first few days of their new ration. Consider vaccinating the animal for prevalent contagious diseases in your area. Vaccination is best done at least 1 week before moving the animal to your farm so that the animal has time to start to develop antibodies prior to the move.

Poultry: Ready-to-lay pullets are acceptable if they are owned and managed for at least 30 days prior to the eggs being offered for sale under the program.

Broiler chicks should be day-olds, and must not be treated with antibiotics prior to shipment.

Turkey polts may be day-old or started, less than 14 days old. No antibiotics may be used.

In addition to the signed affidavit, in order to guarantee that a purchased animal is healthy and in good condition, MRM members must own the animal and be its regular manager for a minimum of 90 days prior to having the animal processed and labeled "Meadow Raised". (See the poultry exception above.) During that time, the animal should remain healthy and not require any treatments other than routine vaccinations.

It is encouraged that all purchased animals be isolated from your other livestock for approximately three weeks. Many prevalent diseases have incubation periods of three weeks or less. If any signs of disease are identified in this isolation period, the animal can be treated or re-sold, without your other livestock being affected.

- **BUYING BROOD ANIMALS**

There is a risk that a brood animal may have received a mastitis treatment prior to the sale. These antibiotics and other chemicals can be stored in the mammary tissue for extended periods. All MRM brood animals must be free of antibiotics for at least 30 days before commencing lactation, or before the milk is fed to any MRM livestock. It is therefore encouraged that brood animals be purchased well before they freshen so you can utilize their milk right away for MRM livestock.

NUTRITION

Feeding of animal products to ruminant livestock is prohibited. No feed-grade antibiotics of any type are to be used. No hormones or growth enhancers of any type are to be used.

- **MILK FEEDING:** It is recommended that newborns receive 5% of their body weight in good quality colostrum within the first 6-8 hrs after birth, and again over the next 18-20 hrs. Older dams generally produce colostrum higher in antibodies, so feeding more colostrum may be necessary if it is from first-time dams. On each of days 2 and 3, the newborn should receive an amount of colostrum equivalent to 8% of their body wt, which will help control pathogens in the gut even if absorption of antibodies has ceased (Merck1998, p.1443).

If a slaughter animal is not raised nursing from a brood animal, milk replacer may be substituted. For the first few weeks, high quality, whole milk or milk replacers should be used. The milk replacers must be free of Bovatec, Rumensin, or other growth promotants and coccidiostats. In later weeks, as the livestock has started eating grain or grazing, lower quality milk replacers may be adequate. Generally, non-medicated milk replacers designed for feeding replacement heifers (20% protein; 20% fat) work well for feeding veal calves. Lambs, kids and fawns, when they don't have access to sufficient supply of dams' milk, can use species-specific milk replacer. Freshly weaned piglets and young poultry also benefit from feeding some non-medicated milk products.

- **ROTATIONAL GRAZING:** Grazing is perhaps the keystone of the MRM system, the central principal that sets the MRM product apart from most others. Management intensive grazing (MIG) requires the grazier to divide the available pasture into paddocks that are large enough to allow the livestock to grow at or near their genetic capacity, small enough that the harvest is efficient and quick, all the while allowing sufficient forage to remain in each division to maximize regrowth for the next grazing period. The actual grazing time in each paddock must be relatively short, usually a maximum of 5 days, to avoid grazing regrowth, and so stressing the forage base. Extended grazing also increases the likelihood that livestock will ingest parasite eggs or larva, causing parasite infestations, and requiring the use of anthelmics to control worms.

The rest period between grazing is also extremely important, and determines how much regrowth occurs, what the long-term composition (due to succession) of the pasture will be, and what animal performance will be obtained. Here too, parasite control plays a part, since returning to regraze at the right time can break the parasite life cycle, while returning at the wrong time can strengthen it.

Finally, all of these factors are continually changing throughout the season, and from year to year, as the number and size of animals, pasture composition, and forage growth rates change. As the name suggests, MIG is truly management intensive.

On the plus side, MIG allows a huge increase in pasture productivity and improvement in animal performance, while keeping the livestock healthier and drastically reducing the cost of a pound of gain when compared with a confinement feeding system.

For pre-ruminant livestock or non-ruminants, milk and/or grain will be the major source of nutrients. For pigs, poultry and rabbits, forage provides an important and low-cost supplement to their diets - of which grain is the main ingredient. For all livestock, frequent moves onto fresh clean lush pasture keeps them in clean surroundings.

Stock-piling forage may enable a producer to sell truly grass-fed MRM livestock for an extended season. The forage MUST be of a quality and quantity to meet most of the animal's needs. Unfortunately, snow load and weather conditions will make relying on stock-piled forage difficult. Stockpiling forage allows MRM farmers to reduce their grain needs through the winter, and can extend the season for a grassfed product as demand increases for this type of meat.

Using herbicides, pesticides, or insecticides on grazing lands are discouraged practices, and that land should not be used by MRM livestock during that grazing season. Aged or composted barn manure can be spread on grazing lands. It is recognized that animals may at times glean corn fields that have been treated the previous year or that spring with the above applications. It is a discouraged practice to graze slaughter animals on these fields.

Every MRM farm is required to have a written grazing plan in effect on their farm, in order to be a member in good standing. This grazing plan should include details about the management system employed, the land available for grazing and the nutrition plan for the year. These plans are subject to review by the MRM protocol committee. These are important keys to improve management and product quality. They will help us highlight potential flaws and suggest new preventative practices to avoid the use of chemical and maximize the quality of MRM animals.

- **GRAIN:** The focus of the MRM program is the use of pasture as the main feed source for growing and finishing. Since the addition of grain to a ruminant's diet decreases the efficiency of forage digestion, and alters the pH of the digestive tract, the use of grain concentrates should be limited to the minimum level required to produce good animal performance on forage.

- Grain fed to pre-ruminant livestock will be limited to 2% of live weight/day.
- Grain fed to ruminant livestock will be limited to 0.5% of live weight/day.

Use of genetically modified grains (GMO) is discouraged, recognizing that it is difficult to obtain grains that are certified GMO-free.

Because MRM has identified a year-round demand for our products, MRM members may also raise livestock for sale to MRM customers during the non-grazing months. While it may be difficult to adhere to the above grain guidelines during the winter in order to produce a high-quality meat animal, MRM members are encouraged to maximize the forage intake of the animal through stored feeds - hay or haylage. If sufficient quantity and quality of hay or haylage is fed, it should not be necessary to exceed the grain quantities described above. Corn silage, as it contains grain, should be limited so as to not exceed the grain feeding limitations. While extra grain may be necessary for some animals to reach the customer's expectation for finish in the wintertime, forage intake should be emphasized.

Note: grain must be withheld from ruminants for 24 hours before slaughter in order to reduce the risk of e-coli contamination.

Because these animals will not be solely grass-fed, and may contain more grain than stated above, the MRM marketing materials specify that grain and stored feeds are provided to the animals as necessary during the wintertime. These animals must still adhere to all of the antibiotic and growth hormone free claims that MRM makes. Because MRM farmers pledge that our farms and our products are based on a philosophy that

grass-fed products are best, it will be a practice of MRM to review this wintertime feed policy every year and recommend ways to increase the forage intake and the grazing season on MRM farms.

- **MINERALS:** In order to maintain proper body functions, a diet must be properly balanced with both salt and minerals. The requirements for different classes of livestock varies, and different locations have different needs. A special blend should be considered for each farm, based upon the species farmed, the minerals found naturally on the farm, and the minerals available in the current feed sources. Minerals can be fed loose or in block form, but should be available free choice at all times.

OVER-WINTERING LIVESTOCK

Animals are encouraged to be given access to the outdoors, and may be housed outside throughout the winter, provided care is given that they receive adequate shelter from the wind and the proper nutrition.

PREVENTATIVE HEALTH CARE

Vaccinations are generally recommended to prevent common illnesses which otherwise would require the use of prohibited medication to save the life of the animal. Vaccination programs will likely be different on each farm. Recommendations for a vaccination program can be sought from a veterinarian familiar with the area and the farm in question. Lacking such advice, the suggestions of local farmers and other MRM producers can assist in determining what conditions are likely to be encountered, and which should be protected against.

Shelter may need to be available to reduce stress and prevent illness, but the amount of shelter required will depend on the class of livestock. Confinement housing is discouraged, although may be necessary for limited periods of very inclement weather and young livestock. For any time the livestock is housed indoors, they must be kept extremely clean and dry, in an area with fresh air and room to exercise.

Fecal egg counts (FEC) are recommended as a tool to monitor the parasite load in livestock before obvious signs of illness or loss of condition occurs.

TREATING ILLNESS

Being informed of common diseases of livestock and practicing methods of prevention are better and usually less expensive than treating illness. Until one develops the knowledge and skill to assess and treat illnesses with alternative therapies, it is encouraged that members seek consultation with a conventional livestock expert and/or veterinarian - even if the resulting treatment means the livestock can not be marketed as MRM.

If a life is in danger and the life can be saved by using antibiotics or other medications, then the animal should be treated. This animal can not be sold as MRM. Marketing assistance may still be available if the animal recovers fully and can be sold in good health and good flesh, well after the withdrawal time of the medication has expired.

- Scours can be treated with electrolytes and probiotics, as necessary.
- Slaughter animals must not be treated with antibiotics.
- Brood animals may not be treated with antibiotics within 30 days of commencing lactation. If it is necessary to treat a lactating brood animal, her milk must be withheld from MRM slaughter stock for 30 days, or the slaughter stock must not be sold as a MRM product.
- Growth hormones are prohibited at all times.

A farm record must be maintained that records livestock illness, treatments, and the results. To aid in identifying particular animals, some means of permanent identification must be considered that will stay on the animal during its entire growing phase. Ear tags are easy to apply and work well in most situations. They can be lost if snagged on fences or brush. Ear notching, ear tattoo, or freeze-branding are other methods that may also be effective, although they are less visible from a distance.

Routine use of medications, including antibiotics and hormones, is prohibited. Homeopathic and/or herbal treatments to prevent or treat illness may be used. For example, some producers have used garlic with calves as an attempt to boost the calves immune system.

PARASITES

Deworming is a highly discouraged practice. The grazing plan should address the parasite issues that are particular to the livestock on the farm, and should identify preventative measures to keep from needing to worm slaughter animals. Brood animals may be wormed twice a year if necessary. It is recommended to worm brood animals as far as possible before the start of lactation. If it becomes necessary to worm slaughter stock (as evidenced by a fecal sample and clinical conditions in the animals), the dewormer medication must be withheld for at least twice the recommended withdrawal time before slaughter. Use of sustained release (SR) or long acting (LA) dewormers are discouraged for parasite resistance and soil health concerns. Clear deworming records must be kept on all MRM farms. If it becomes evident that routine deworming of slaughter stock is in practice on a MRM farm, the farm grazing plan will be reviewed by the MRM protocol committee, and suggestions will be made for change. If routine deworming continues, the MRM membership may consider terminating the membership of that farm. Routine, for this document, means that a particular practice is employed on the MRM farm on a regular or scheduled basis rather than based on demonstrated clinical need.

Coccidiostats should seldom be needed on MRM farms. Coccidia is an opportunistic parasite, that preys on weakened immune systems. Coccidiostats may never be given as a feed-grade medication. If it becomes necessary to treat an animal with a coccidiostat, the label withdrawal time must be doubled before the animal can be marketed as MRM. The same conditions as the worming protocol apply to coccidiostats.

Various products and strategies are used by members, and it is encouraged that producer's experiences using these be shared with the rest of the members. Some strategies used by various members:

- grazing young stock ahead of mature animals
- alternate grazing rotations of more than 1 species (for example on one rotation graze the paddocks with cattle - the next time through use sheep)
- take a hay crop from a previously grazed area
- "sanitize" pastures by rotating poultry 3-4 days behind grazing livestock
- provide dense shade for hot humid days
- minimize standing water
- homeopathic treatments such as alternating equopathic and cina, used alternately and a week at a time once per month, mixed into the water troughs has been used by one MRM member
- herbal treatments

Keeping pasture as clean of parasites as possible will make it possible to raise MRM livestock free from anti-parasitic chemicals.

LIVESTOCK HANDLING

The treatment that livestock receives, from birth through slaughter, can have an enormous impact on their quality of life, and the quality of the finished product. Producers should strive to keep the stress of their animals at an absolute minimum, including handling, shipping, weather-related stress, and the environment of the slaughter facility. The use of proper facilities for transport and weighing, and established routine for paddock shifts, and adequate room to prevent crowding all contribute to animal comfort, and maximum performance. The use of darting, electric prods, sedation or tranquilizing agents are prohibited. It may make

sense to do certain procedures, such as castrating beef calves, at 3 months of age (rather than in the first week or two of life as some experts recommend) because the beef cows are brought in to be vaccinated when the calves are 3 mths old. Handling them once, even though they are older, is seen as less stressful than handling them twice.

In addition, research has shown that docile livestock produce more tender products, so producers should encourage livestock to be unafraid of human contact and calm in temporarily crowded environments (A. Nation, SGF, Feb 2001, p. 21).

DESCRIPTION OF LIVESTOCK SOLD UNDER THE MRM LABEL

To strive towards some uniformity of the taste and portion sizes of our products for particular markets the age, condition, breed and castration status of the animal is important.

- **VEAL CALVES:** generally any healthy calf 350-500 pounds and less than seven months of age can be marketed as MRM. Bull Holstein calves are the present standard, with at least 52% dressed/live weight ratio. Other breeds of calves, including beef breed calves, can make good pastured veal calves. It will be easier to find sales for a younger, plumper calf than an older, leaner calf. Also, a young plump calf may bring a better price. Castration or dehorning is done only if necessary. Generally the advantages do not justify the added stress to the calves.

- **LAMB:** Hot house lambs: plump 30-50 pounds milk-fed lambs less than two-months old. These lambs will have access to rotational grazing, if available, but their intake may be limited due to their age and pre-ruminant status. Excellent forage, rather than significant grain, is used to nourish both the ewe and lambs and would differentiate this product from "hot house" lambs conventionally produced in confinement.

Ethnic or feeder lamb: 60-80 pounds and lean but meaty. This lamb can be produced without any creep feed or grain ration, and depending on the season, obtain all its nutrition from its dam and good pasture.

Market lamb: 90-120 pounds, lean and very meaty and six-months old or less. Ram lambs should be castrated if they will be more than four-months old before being marketed.

- **GOAT:** Milk-fed kids: plump 25-45 pounds kids less than two months old. Kids will have access to rotational grazing, if available, but their intake may be limited due to their age and pre-ruminant status. Excellent forage, rather than significant grain, is used to nourish both the doe and kids and would differentiate this product from "hot house" kids conventionally produced in confinement.

Feeder kids: 50-70 pounds. Produced with a forage based diet.

Market goat: 80-110 pounds. It is not necessary to castrate bucks if they are less than one- year old.

- **PORK:** Long, lean 200-240 pounds meat-type hogs that are less than six-months old. Boars must be castrated. At times, there may be a market for whole 45-100 pound roaster pigs.

- **BEEF:** steers or heifers, 15 to 24- months old, that grade low choice to prime (select to high-select), and yield grade two or three. An animal of this degree of finish will have some fat accumulation at its tail head and brisket, and a uniform fat cover over the rest of its body such that the ribs will not be visible. At times, there may be market for Baby Beef that is differentiated from beef in that the animal is younger, the meat is lighter in color than beef, and the flavor is milder.

- **DEER:** fallow or axis deer should be well muscled and under 36 months old

- **BROILERS:** plump double breasted broilers that are six and one-half to eight-weeks old.

- **TURKEYS:** plump broad breasted turkeys that are 15 to 24- weeks old.

- **RABBITS:** plump four to six lb. fryers that are eight to 12- weeks old.

- **EGGS:** fresh, clean chicken eggs. The carton should be dated as to when the eggs were laid and kept refrigerated.

RECOMMENDATIONS FROM THE MRM PROTOCOL COMMITTEE

1. Premium pricing be established for livestock products produced according to Meadow Raised protocol.
2. Markets are actively sought for ALL livestock produced on MRM members farms.

Not all animals produced on a MRM farm will qualify as "Meadow Raised". For whole farm profitability these animals need to be marketed effectively. It is a shared interest for all members of the MRM marketing group to assist in marketing ALL the livestock produced on all the farms of MRM members.

3. Members have the opportunity to participate in a workshop on doing fecal testing so that they are able to improve in their ability to monitor parasites.
4. Two members of the MRM Protocol Committee will visit each MRM members' farm annually to review general livestock management (grazing plan, shelter, nutrition, and overall health of the livestock) and to aid members in integrating MRM protocol into their operations. It is assumed that members of the MRM marketing group are doing their best to produce healthy livestock and that there is more than one way to do that. Any concerns identified and any suggestions will be expressed in a letter that will be sent to the MRM member involved and to the chair of the association. Fuel costs for the visits will be covered by MRM funds.

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ENERGY AND COST EFFICIENCIES FOR MEADOW-RAISED MEATS

Research has shown that for all the types of meat produced by MRM Association farms, less total input is required to produce grass-based meats than in conventional confinement production. In fact, labor is the only input where grass-fed costs are higher. This is noteworthy considering the variations in farm management practices, energy efficiencies, and farmer experience with grass-based production.

The research indicates that grass-bed production costs including labor are up to 30% less than confinement. This holds true even though the average time to raise animals for market is extended from 20% to 100%. Thus, those farms with higher overhead costs will need considerably more stock to break even when factoring in fixed overhead. MRM Association analysis indicates that the average prices and net margins per carcass weight for the Association's primary products are:

MEADOW RAISED VEAL:

Value per calf: \$440-\$500 (\$1.75 - 2.00/lb dressed weight)

Costs per calf: \$150 - 250

(depending on value of newborn calf and feeding methods)

Net return before labor, management and capital: \$200- 300 per calf

Conventional Veal:

Value per calf: \$500-600 (\$2.00/lb dressed weight)

Costs per calf: \$375

Net return before labor, management and capital: \$125-\$225 per calf

MEADOW RAISED BEEF:

Value per beef: \$900 (\$1.50/lb dressed weight)

Costs per beef: \$350

(depending on value of newborn calf and feeding methods)

Net return before labor, management and capital: \$550 per beef

Conventional Beef (estimated from several sources):

Value per beef: \$900 - \$950 (\$1.20/lb dressed weight)

Costs per beef: \$900

Net return: \$0 - 50 per beef

(lower return due to much higher capital costs)

MEADOW-RAISED PORK:

Value per pork: \$260 (\$1.45/lb dressed weight)

Cost per pork: \$100-\$150

Net return before labor, management and capital: \$110 - 130 per pork

Value per pork: \$84 (\$.42/lb live weight)

Cost per pork: \$78

Net return: \$6 per pork

(lower return due to much higher capital/labor costs)

MEADOW-RAISED LAMB:

Value per ewe: \$168 (\$2.40/lb dressed weight)
Cost per ewe: \$40 (for average of 150 per farm)
Net return before labor, management and capital: \$128 per ewe

Conventional

Value per ewe: \$168 (\$2.40/lb dressed weight)
Cost per ewe: \$97 (for average of 100 per farm)
Net return before labor, management and capital: \$71 per ewe

The table on the following page displays the energy input cost data from the survey of farmers participating in the NYSERDA project. The table compares the energy inputs of grass-based, versus conventional confinement, by animal. In all cases, grass-based production was significantly lower than confinement. The values for beef are weighted towards the input costs for brood cows in support of veal production. The actual values for beef raised on pasture for meat would be significantly less than the figures in the table. The energy inputs have been converted to BTUs for presentation comparisons.

As the energy savings chart on the following page indicates, energy savings of grass-based production compared to convention methods is:

- 21% for beef
- 62% for chicken
- 89% for veal
- 88% for lambs and goats.



ENERGY CONSUMPTION PER ANIMAL

Meadow Raised	Beef	Veal	Chickens	Lambs/Goats	Pigs
Total Grain (pounds)	920	-	7	29	568
BTU per Pound	895	895	895	895	895
Total BTUs	823,370	-	6,310	25,97	508,214
Total Hay (pounds)	3,800	133	-	324	-
BTU per Pound	1,113	1,113	1,113	1,113	1,113
Total BTUs	4,227,500	148,333	-	359,926	-
Fuel Consumption	0.78	1.41	0.01	0.16	0.41
BTU Per Gallon	140,000	140,000	140,000	140,000	40,000
Total BTUs	109,338	196,809	1,312	21,868	56,856
Total BTUs Per Animal	5,160,208	345,142	7,622	407,773	565,069
BTUs per lbs. Dressed Weight	10,320	1,381	2,033	6,911	2,923
Conventional					
Gallons of Oil Per Animal*	46.60	23.30	0.14	25.03	26.16
Total BTUs per Animal	6,524,000	3,262,000	19,883	3,504,320	3,661,724
Energy Savings in BTUs	1,363,792	2,916,858	12,261	3,096,547	3,096,655
	21%	89%	62%	88%	85%

* Includes feed, pasture, fuel, fertilizer, pesticides, utilities, etc.

Energy Study References

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Snider, T. And Graboski, M. "Energy and Oil Consumption in Beef Production."

National Corn Growers Association. April 2002.

"Energy Use in Forage Production." Agromedia, Canada. 2002.

RESOURCES

Stockman Grass Farmer offers practical information on producing and marketing. An excellent resource for any sustainable livestock producer. \$28/year from:

SGF
PO Box 2300
Ridgeland, MS 39158-2300
800-748-9808
FAX: 601-853-8087

Marketing Out of the Mainstream is available at <http://www.sheepusa.org> (under "The Marketplace"). While specifically covering lamb and wool, the publication offers valuable information for any meat marketer.

An outstanding source of marketing information for meat goats is the E. (Kika) de la Garza Institute for Goat Research. They offer a comprehensive series of fact sheets covering meat goat marketing and information on consumer demand for goat meat. These are available on the Internet at <http://www.luresext.edu/goatext.html>, or by contacting:

E (Kika) de la Garza Institute for Goat Research
Langston University
P.O. Box 730
Langston, OK 73050
(405) 466-3836
FAX: (405) 466-3138

American Meat Science Association
1111 North Dunlap Avenue
Savoy, Illinois 61874
(217) 356-3182
FAX: (217) 398-4119
<http://www.meatscience.org>
Arlis Burney
Food Processing Center, University of Nebraska
143 Filley Hall
Lincoln, NE 68583-0928
(402) 472-8930
E-mail: aburney1@unl.edu
<http://foodsci.unl.edu/fpc/market/ent.htm>

AURI's meat laboratory and pilot plant in Marshall, MN, offers small meat processors the opportunity to test out ideas for value-added processed products for both humans and pets.

Darrell Bartholemew (507) 537-7440 or visit <http://www.auri.org>.

Texas A&M offers meat science information and training seminars such as "Beef 101" and "Sausage School" to producers. Contact:

Ray Riley

Rosenthal Meat Science and Technology Center

Department of Animal Science

Texas A&M University

(409) 845-5651

FAX: (409) 847-8615

E-mail: ray-riley@ansc.tamu.edu

<http://meat.tamu.edu/>

The National Center for Agricultural Law Research and Information (NCALRI) at the University of Arkansas offers links to state and federal environmental laws that affect agriculture at their Web site:

<http://law.uark.edu/arklaw/aglaw/envlinks.htm>. NCALRI staff attorneys can address specific legal questions, within the areas of their expertise, from farmers, attorneys, agri-businesses, agricultural organizations, and federal and state governmental entities. For more information contact:

NCALRI

147 Waterman Hall

University of Arkansas

Fayetteville, AR 72701

(501) 575-7646

FAX: (505) 575-5830

E-mail: swillia@comp.uark.edu

Why Grassfed is Best! by Jo Robinson, offers 107 pages of information and resources on health and environmental benefits of eating grass-fed livestock products. It is available for \$7.50 plus \$2.50 s&h (single copy rates) from:

Columbia Media

2401 N. Cedar

Tacoma, WA 98406

(206) 463-4156

FAX: (206) 463-4666

For more information on the Retailer Purchasing Guide contact:

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New Hope Natural Media

Circulation Department

1301 Spruce Street

Boulder, CO 80302

(303) 939-8440

FAX: (303) 473-0519

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R. B. Humphreys Inc.
876 Tibbits Rd.
New Hartford, NY 13413
315-793-3191

Brocco Foods
Gardners St.
New York Mills, NY
315-736-8772

Tony Picante Trucking
PO Box 129
Oriskany Falls, NY 13425
315-821-2235

GENERAL

Jackson, MS 39286-9607
(800) 748-9808
6) Center for Holistic Management
1010 Tijeras, NW
Albuquerque, NM 87102
(505) 842-5252
(800) 654-3619
<http://www.neb-sandhills.net/nebrhrm/center.htm>

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Potash & Phosphate Institute
(770) 825-8084

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Extension Distribution Center
119 Printing & Publications Bldg.
Iowa State University
Ames, IA 50011
(515) 294-5247

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University of Missouri, Columbia, MO.
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Extension Publications
University of Missouri
2800 Maguire
Columbia, MO 65211
(573) 882-7216

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Occasional Publication No. 10.
New Zealand Society of Animal Production.
Private Bag, Hamilton, New Zealand. 145 p. ISBN 0111-3976.
Available for \$20 ppd. from:
New Zealand Society of Animal Production
AgResearch, Ruakura
PB3123
Hamilton, NZ
e-mail: NZSAP.ANIMAL@xtra.co.nz
<http://nzsap.rsnz.govt.nz>

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Forage, Animals, Men, Profits. The
Graziers Hui, Kamuela, HI. 350 p. ISBN
096627 0401. Available for \$29.95 from:
The Graziers Hui
P.O. Box 1944
Kamuela, HI 96743
(808) 885-7553

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Available for \$25 from:

Bargyla Rateaver
9049 Covina St.
San Diego, CA 92126
(619) 566-8994

(Also available are Turner™s Fertility Farming and Herdsmanship for \$35 each.)

Undersander, Dan. 1991. Wisconsin Pastures for Profit. Publication A3529.

University of Wisconsin Cooperative Extension,
Madison, WI. 52 p. Available for \$3.75

(including shipping) from:

University of Wisconsin Extension
Cooperative Extension Publications Office
630 W. Mifflin St., Room 170
Madison, WI 53703
(608) 262-3346

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A few copies still available for \$26.50 + \$4 s&h from:

Sheridan House Inc.
Dobbs Ferry, NY 10522
(914) 693-2410

ON THE WEB

The Great Lakes Grazing Network

<http://www.glgm.org/>

Cornell Forage-Livestock System

<http://wwwscas.cit.cornell.edu/forage/forage.html>

Penn State College of Agricultural Sciences Publications

<http://pubs.cas.psu.edu/Subject.html>

American Farmland Trust™s Grassfarmer Site

<http://grassfarmer.com/>

University of Wisconsin Forage and ExtensionLinks

<http://www.uwex.edu/ces/forage/links.htm>

Forage Systems Research Center

<http://aes.missouri.edu/fsrc/>

Sustainable Farming Connection™s Grazing Page

<http://www.ibiblio.org/farming-connection/grazing/home.htm>

