RETAINED OWNERSHIP OPTIONS

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"My cattle are superior to the average and I should receive a bonus or premium for my weaning calves," a statement often heard in the beef producer's world! In the majority of cases, with our market structure, pricing is built around averages with discounts. Our industry is in a major transition of market restructuring. We are seeing programs being developed which will pay more for cattle that are handled before and after weaning, in a specific way, under specified guidelines as to vaccination programs, times from weaning to delivery, and feeding regimes during that period. This premium is for handling technique and not for genetic merit. We are currently seeing market options become available for our calves that have not been common in the past. The value of calves preconditioned" (weaned from the cow for 30 to 45 days, had specific vaccines that were timely and properly administered and have been led [or "trough broke"] under a designed feeding/grazing program) is greater to the purchaser than a flesh weaned calf. This value is being established and programs are in place which will pay a premium for calves handled in this manner.

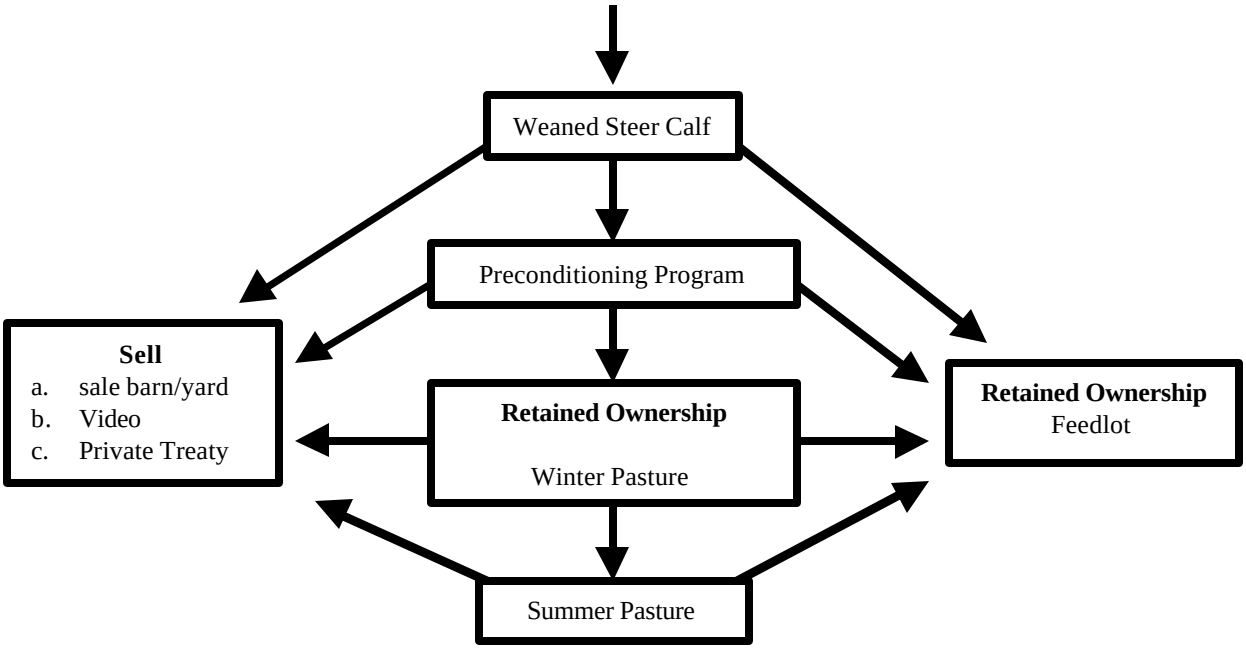
VALUE ADDED OPPORTUNITIES

Calves being sold on their superior genetic value, with respect to economically important traits, is the exception more so than the rule. What will drive us to produce superior cattle? Economic Gain! Genetically superior cattle will pay you a premium every day you own them if your production cost is comparable to the producer of "average" calves. Calves that are bred to have more growth and efficiency and are produced from cows with the ability to support (milking/mothering ability) and maximize these superior traits will bring a greater dollar return than the "average" less efficient calf. You are being paid a premium for more efficient production and more pounds of marketable product. The same thought holds true during stocker and feedlot phases. If the cattle you produce are truly genetically superior to the average, your increased production (gain/efficiency) will show up as a premium, even if the cattle are sold at average market price. If your cattle have truly superior carcass merit (superior quality/yield grades) you can sell your cattle formula/value based and receive a premium above "average" cash price. The common denominator to increased return from truly genetically superior cattle is retained ownership. At the onset of a retained ownership program the subject of preconditioning surfaces--vaccination types, costs, time on feed, etc. The degree of involvement, both cost and time, is much like buying insurance. You may not have problems with a preconditioning program that is short term and lacking in immunization protection, but you are very much at risk. A full blown 30- to 45-day preconditioning program with a total or optimum vaccination program will cost more total dollars but the lowered probability of morbidity, mortality, and overall increases in efficiency will, in most cases, pay the difference many times over. The risk of the proverbial "wreck" is drastically lowered with properly preconditioned calves as compared to those with no or minimal handling. Bottom line -there are no free lunches! The more a preconditioning program deviates from a research based optimum program, the higher the risk of problems during the transition period of movement between enterprises and later down the production chain. In the simplest form, an optimum preconditioning program does two major things: first, it develops the immune system; and second, it increases the animal's ability to withstand the stress of change.

OPTIONS FOR RETAINED OWNERSHIP

It is estimated that 70 percent of the calves born in the Southern Great Plains are spring born (October-December weaned) and 30 percent are fall born (June-August weaned). If the cow-calf producer desires options other than selling directly off the cow, these options are available at varied levels for both spring calving or fall calving producers (Figures I and II).

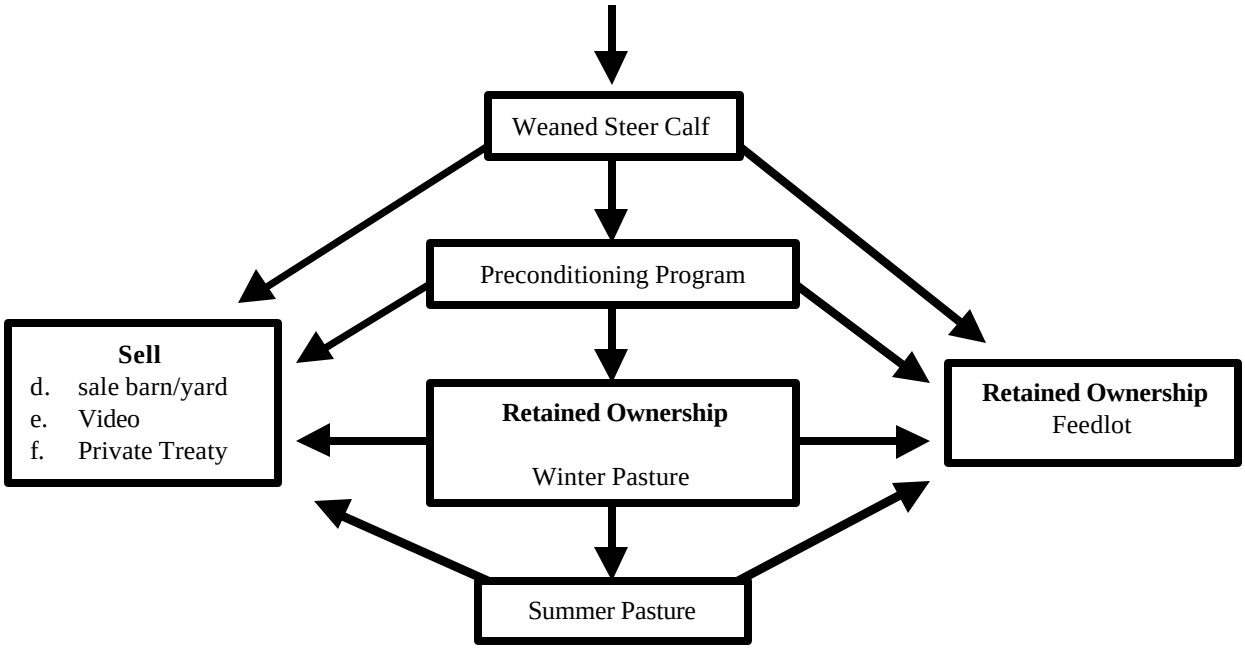
Figure I. Calf Flow Options for "SPRING CALVING" Cows



The retained ownership options to the cow-calf producer are:

1. Sell after preconditioning.
2. Retain ownership through a (stocker) grazing program. These grazing programs can be winter or summer or combinations of the two.
3. The feedlot.

Figure II. Calf Flow Options for "FALL CALVING" Cows



Personal preference, cattle types and weights, current and future market value, weather conditions, cattle condition,

understanding of the marketing options, and knowledge of production systems are factors to consider with retained ownership. The bottom line of profit or loss is based on two major items: first, market value; and second, production cost. Cost of production or net cost of gain becomes very important. In most cases the highest cost of gain is incurred at the primary producer level, that of the cow-calf enterprise. It is imperative the cow-calf producer know his production cost or break-even. This is his cost of gain. If this cost of production is more than the market value of the calf, there are two choices: sell at a loss, or look at retained ownership to add additional pounds at a lower cost. Retained ownership will hopefully produce a heavier animal with a lower break-even and hopefully put the producer in a better marketing position. This can be achieved with two primary enterprises -a stocker or grazing program, and a feeding or feedlot program. In Oklahoma and Texas we are very fortunate to have a variety of forage systems and weather conditions that are conducive to grazing beef cattle. Many of these grazing programs are excellent at adding pounds at a relatively low cost of gain. This is especially true if you compare a pound of gain from the cow herd to the cost of gain of the weaned calves on a well planned and well run grazing program.

GRAZING OPPORTUNITIES

Young growing cattle require an average daily gain of at least 1.5 pounds for the duration of the grazing period. A young growing calf 7 to 9 months of age requires a forage with a 10 to 12 percent crude protein and 65 to 70 percent digestibility. Performance of calves can vary greatly depending on the forage, stocking rate, length of grazing period, nutrient supplying ability of the soil and such influences as the genetic ability of the cattle to gain, health factors, and general handling procedures.

Small grains (rye, wheat, barley, and oats) grown either as a single crop or as mixes are traditionally used for winter pastures for stocker calves. These combinations will provide a high quality forage over a long period; however, this type of pasture is expensive to grow and the cost of gain must be considered to ensure profitability.

Warm season perennial grasses offer a high quality forage during spring and early summer, but then protein and digestibility rapidly decline, possibly causing negative gains unless supplements are used.

Alfalfa offers a high quality forage from spring to fall. Daily gains of 2 pounds/day can be obtained. Alfalfa requires intensive management with rotation stocking to allow rest and recovery for plants to maintain stands and productivity. Tables I and II show expected performances of stocker calves on selected forages in Oklahoma and Texas. Nitrogen requirements, gains during selected periods, and total days for the grazing period are also shown.

Table 1. Warm-season forages for grazing in Oklahoma and Texas

Forages	Nitrogen Fertilizer, lb/ac	Winter Average Daily Gain, lb/hd	Average Weight Gain, lb/head/day			Spring/Summer Grazing Period, days
			Spring/Summer	Spring	Summer	
Native grasses (Good Condition)	0	0-0.5	1.6	2.5-3.0	0.5-1.0	150
Introduced grasses:						
Bermudagrass	50-100+	0-0.5	1.4	2.0-2.5	0-.7	120
Bahiagrass	50-100	0-0.5	1.25	2.0	0-0.5	130
Old World Bluestems	50-100+	0-0.5	1.5	2.0-2.5	0-0.5	150
Kleingrass	50-100+	0-0.5	1.5	2.0-2.5	0-0.5	150
Buffelgrass	0	0-0.5	1.5	2.0-2.5	0-0.5	150
Lovegrass	50-100+	0-0.5	1.3	2.0-2.75	0-0.5	165
Forage Sorghums	75-125		1.4	1.75-2.0	0.5-1.0	100
Pearl Millet	75-125		1.4	1.75-2.0	0.5-1.0	100
Johnsongrass	75-100		1.8	2.5-3.0	0.75-1.0	130
Crabgrass	75-100		2.0	2.5-3.0	1.0-1.5	85
*Alfalfa	*0	0.5-1	2.0	2.5-3.0	1.0-1.5	175

*Nitrogen fertilization is necessary at planting. Other nutrients may be needed on an annual basis.

Table II. Cool-season forages for grazing in Oklahoma and Texas

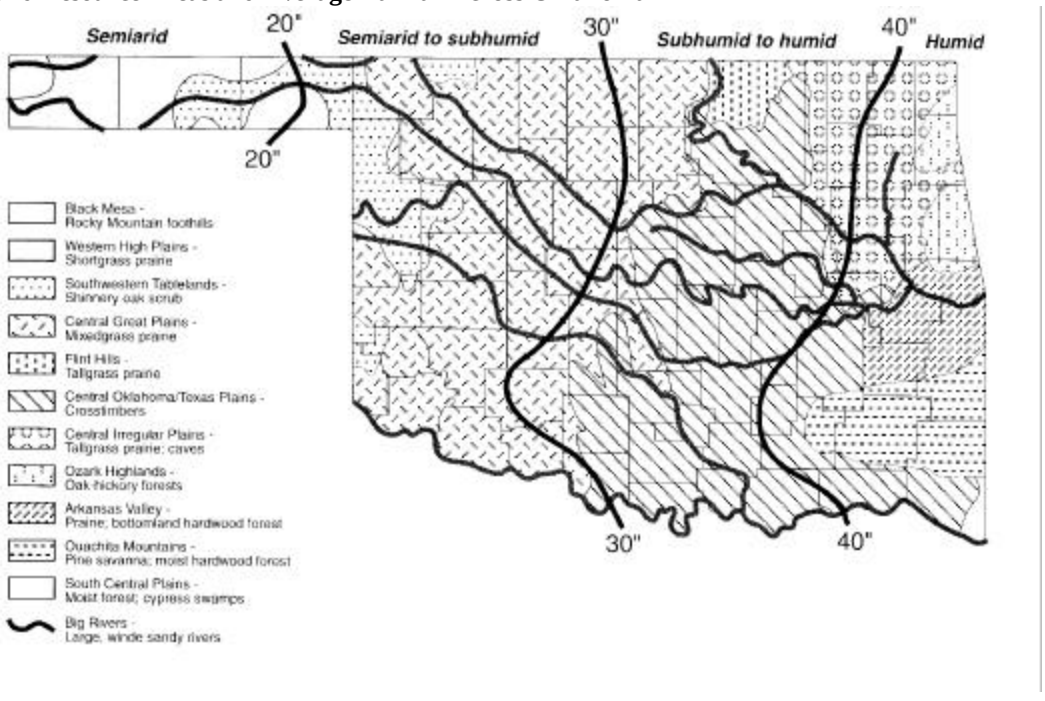
Forages	Nitrogen Fertilizer, lb/ac	Winter Average Daily Gain, lb/hd	Average Weight Gain, lb/head/day			Total Grazing Period, days
			Fall	Winter	Spring	
Tall fescue	100-120	1.0	1.5	0.5	0.75	170
Tall fescue, endophyte-free	100-120	1.8	2.0	1.0	2.5	170
Tall fescue/clover	50-75	2.25	2.0	1.5	2.5	170
Wheatgrasses	50-120	1.8	2.0	1.0	2.0-2.5	170
Irrigated Bromegrasses	100+	2.0	2.0-2.5	1.5-2.0	2.0-2.5	240-300
Orchardgrass/clover	50-75	1.6	1.0	0.5	2.5	180
Wheat	100-150	1.8	1.5	1.0	2.5	100-180
Oats	100-150	2.0	2.0	1.5	2.5	100-180
Rye/Wheat	100-150	1.8	1.5	1.0	2.5	200
Rye/Wheat/Ryegrass	100-150	1.75	1.5	1.0	2.5	230
Rye/Ryegrass/Clover	50-75	1.8	1.5	1.0	2.5	230
Sod-seed small grains	80-120	1.8	-	1.0-1.25	2.0-2.5	60-100

FORAGE RESOURCE AREAS OF OKLAHOMA

Figure III is an outline of the different regions across Oklahoma. With respect to soil types and rainfall, Oklahoma is a very diverse state. Climatic conditions and soil production capabilities determine the level of opportunity to grow forages. The very western corner of the Oklahoma Panhandle receives an average annual rainfall of 17 inches per year whereas the very southeastern corner of the state receives an average annual rainfall of 50 inches per year. To grow quality forages one must match the soil type and rainfall to the forage being grown.

For discussion purposes, Oklahoma has been divided into four regions based on average annual rainfall. Within these areas the soil rhizosphere can often modify the forage production potential. Such things as soil type, water holding capacity, native fertility, and potential pest problems can have a major effect on adaptation and productivity of a particular forage species.

Figure III. Land Resource Areas and Average Rainfall Across Oklahoma



Region I

This is the semi-arid region of the Oklahoma Panhandle that receives 20 inches and less of annual rainfall. Dryland grass production and animal carrying capacity are limited. Most species are very palatable and desirable animal performance can be expected provided available forage is sufficient. Short grass species include curly mesquite, buffalograss, and miscellaneous grama species. There is limited opportunity to grow summer annuals such as sudan and sudan hybrids.

Irrigation: This region has the potential for supplemental water sources. The opportunity to irrigate depends on the cost of supplying supplemental water and the value of the product being produced. In some instances, forages for grazing can compete with other crops. The following are commonly used irrigated forages:

1. Rye, wheat, and barley can be planted in mid to late August. This will provide grazing from October through May. There may be periods in January and February that will require supplemental hay feeding due to a possible lack of forage. Varieties of small grain must be selected based on forage production and site adaptation.
2. Rye-crabgrass double crop. This combination should be grown on light textured soil. The rye will provide grazing from mid October to mid April while crabgrass will provide grazing from mid May through August.
3. Irrigated alfalfa has a very high yield potential. Alfalfa will provide grazing from May through October. The carrying capacity can range from 5 to 7 head of yearling calves per acre.
4. Sudan, sorghum-sudan hybrids and pearl millet are warm season annual grasses. When grown under irrigation they will provide a high volume of forage for a short grazing period. These forages require substantial inputs such as seedbed preparation, fertilization, and management. Cost per pound of gain must be considered.

Region II

This region reaches from the semi-arid region of 20 inches and less rainfall per year to the sub-humid region of 30 inches of rainfall per year. Soils are deep, fertile, and uniform over a wide area. This region is commonly known as the breadbasket of Oklahoma that comprises the wheat growing section of Oklahoma. Irrigation is available on a limited basis allowing high yields of alfalfa and other crops.

1. Winter wheat is the dominant crop in this area. A combination of wheat for forage and grain can be a valuable economic enterprise.
2. Alfalfa is grown primarily as a cash crop for hay production. There is opportunity to graze low yield cuttings that are not economical to harvest for hay. Often alfalfa is not cut prior to a killing frost, leaving the aftermath to graze off in November and December. This has proven to be beneficial in preventing the alfalfa weevil from populating itself for the coming season.
3. Mid-seral nativegrasses dominate most of the open range areas. Mid grasses include sand bluestem, prairie dropseed, sideoats grama, silver bluestem, and many miscellaneous species. Mid-seral grasses are more tolerant to grazing pressure than tallgrasses; therefore, they are known to be less palatable. These grasses should be grazed prior to their maturity in order to achieve desired animal performance.
4. Introduced bluestems (Plains, WW Spar, Caucasian, and Ironmaster) have been established on set aside land for the Soil Conservation Reserve Program. Several acres will expire from this program in 1995 and will be available for grazing purposes. Cattle performance for these grasses are similar to native tallgrasses. Daily gains of 2.0-2.5 pounds per head can be expected during the spring growth phase.

Region III

This region receives between 30 and 40 inches of rainfall per year. This is a transition area from the sub-humid plains of the west to the humid area of the east. This region is commonly referred to as the cross-timbers of Oklahoma. Soils range from deep alluvial, sandy loams in the open grassland prairies to the very shallow, rocky soils of the post-oak and blackjack-oak forest. Most of the open prairies, from the time of early settlement, were impacted with various types of farming activities. Soils are often shallow due to erosion and are low in organic matter and essential plant nutrients. This region is very responsive to introduced pastures, particularly bermudagrass and lovegrass. The most productive soils are the creek and river bottoms. Many of these areas continue to be cropped and are conducive to growing winter cereals crops and summer forages such as alfalfa.

1. Rye-wheat, rye-ryegrass, rye-ryegrass-clover, and rye-crabgrass double crop are primary choices for cool-season forages. Elbon, Bonel, Maton and Oklon are selections of rye developed for winter forage production in this region.
2. As you move toward the 40 inch rainfall areas, mixtures of fescue and clovers can be grown in the river bottoms. Fescue by itself yields poor animal gains because most pastures are infected with endophyte fungus. Animal performance can be greatly improved by adding legumes or by planting endophyte free fescue varieties.
3. In general, warm season perennial grasses such as bermudagrass and lovegrass produce poor animal gains. There is a short graze period in the spring where acceptable gains nativegrass to grow various kinds of crops for his survival following early settlement. The natural ecological process of how these plants grew was interrupted. Only in recent years have we begun to learn how to re-create the natural processes in which these grasses grew. With modern grazing methods we can now fully begin to appreciate the value of these grasses. Nativegrasses such as Indiangrass, big bluestem and switchgrass, are very high producing and high quality warm-season perennial grasses.. these grasses will retain their palatability throughout the growing season.

4. Tall nativegrass grew through this region prior to man's settlement. Man plowed out thousands of acres of nativegrass to grow various kinds of crops for his survival following early settlement. The natural ecological process of how these plants grew was interrupted. Only in recent years have we begun to learn how to re-create the natural processes in which these grasses grew. With modern grazing methods we can now fully begin to appreciate the value of these grasses. Nativegrasses such as Indiangrass, big bluestem and switchgrass, are very high producing and high quality warm-season perennial grasses. These grasses will retain their palatability throughout the growing season.

Region IV

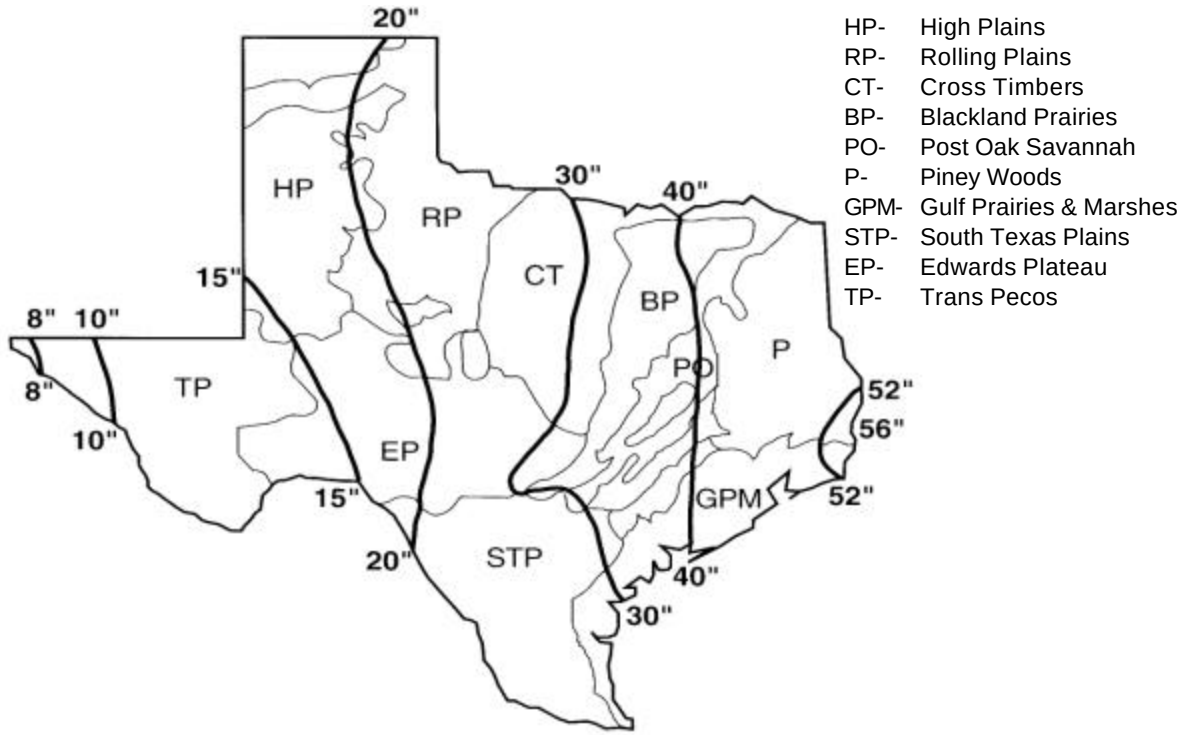
This region is designated as the humid area of the state. It receives 40 inches and above rainfall per year. Soils, in general, are acidic and are leached of essential plant nutrients. Introduced warm- and cool-season perennial species are very adapted to this area. Forages must be intensely managed with both fertilization and grazing in order to reap the potential this area has to offer.

1. Because of adequate rainfall, perennial cool-season grasses and legumes do very well. Endophyte-free fescue and either red clover or white clover will provide high quality grazing from September to December and March to early June. Stocking rates of 1 to 2 yearling steers per acre are common.
2. Orchardgrass and Southland bromegrass are cool season perennial forages that can be grown successfully in the northern third of this region. They can be grown in combination with white clover, red clover, or alfalfa to provide high quality grazing from April to July.
3. Rye, wheat, or oats planted on a prepared seedbed will provide excellent forage quality from October to May. With the addition of annual ryegrass and arrowleaf clover, we can extend the grazing period into June. Rye grows best on well drained, light textured soils. In general, soft wheat varieties perform better in forage production than hard red winter wheat varieties.
4. Overseeding warm season sod grasses such as bermudagrass with rye, ryegrass, wheat-ryegrass or clover combinations in late September to mid October will provide high quality forage from March to July.

FORAGE RESOURCE AREAS OF TEXAS

Texas is generally divided into ten distinct forage resource regions. These regions are outlined in Figure IV and are characterized by differences in topography, precipitation, soil type, and vegetation. Most regions have distinct differences in one or more of these areas. The different regions will be discussed separately with the exception of the Cross Timbers, Blackland Prairies, and Postoak Savannah which have similar production potentials. The following discussion of forage resource areas will attempt to distinguish differences in enterprise and production potential based on location within the state.

Figure IV. Land Resource Areas and Average Rainfall Across Texas



High Plains

This area includes most of the Texas Panhandle and is separated from the Rolling Plains by the caprock. The area is relatively level. Precipitation ranges from 15 to 21 inches with a dry midsummer period. Average frost free period is from 180-225 days. Rangelands in this region are classified as mixed or shortgrass prairies. Typical native grasses include buffalograss, blue grama, and sideoats grama. Little bluestem and western wheatgrass occur on more favorable sites. It is not uncommon for calves to be roughed through the winter on dormant warm-season pastures, then grazed through the spring and summer.

A large portion of this region is cultivated for wheat, corn, sorghum and cotton production. These cropping systems provide some alternatives for winter grazing either from small grain forage or crop residues. The predominant winter forage grazing resource is wheat pasture. Summer annuals such as forage sorghum and pearl millet are common in most of the region. Alfalfa is occasionally used for summer grazing and some alfalfa aftermath is grazed in the winter.

Introduced pastures in this area include warm-season perennials such as old world bluestems and weeping lovegrass. Tall and intermediate wheatgrasses are perennial cool-season forages occasionally planted in this region. Recently, bromegrasses from New Zealand have been introduced and are being grown under irrigation.

Rolling Plains

The Rolling Plains is characterized by gently rolling to rough topography in Northwestern Texas. Average annual rainfall varies from 22 inches in the west to nearly 30 inches in the east. Seasonal precipitation is highly variable but lowest in the summer. About two-thirds of the area is still in rangeland with intermittent cultivated areas making up the remainder of the area. Although cow/calf operations are the most common range livestock enterprise, approximately half of the livestock income in the region is generated from stockers.

Generally, this area is a mesquite savannah. Depending upon soil type and rainfall, species of range grasses can include the midgrasses such as little bluestem and sideoats grama, shortgrasses such as curly mesquite, buffalograss, and blue grama, and tallgrasses such as big bluestem and Indiangrass. Other species of importance are tobosagrass, dropseeds, and hooded windmillgrass. Western wheatgrass and Texas wintergrass are two native perennial cool-season species that are important contributors to cattle nutrition during the winter months.

The cultivated land is used for wheat or cotton production. Wheat pasture is used for grazing calves during the winter and spring months. Summer annuals such as forage sorghum and pearl millet are grown in some areas.

Introduced pastures in this area include warm-season perennials such as the old world bluestems and weeping lovegrass. In the eastern area, bermudagrass is also used for grazing and hay production. Tall and intermediate wheatgrasses are perennial cool-season forages occasionally planted in this region.

Post Oak Savannah, Cross Timbers and Blackland Prairies

These regions extend from Oklahoma into northern and central Texas. Topography of these areas is characterized as gently rolling to level in the Blackland Prairies to gently rolling and hilly in the Post Oak Savannah and Cross Timbers. Precipitation ranges from 25 to 40 inches per year and occurs primarily in the spring months. Most of the Cross Timbers and Blackland Prairies have been converted to cultivated cropping or introduced pastures.

Potential rangeland forages include little bluestem, big bluestem, Indiangrass and switch-grass. In southern areas, brownseed paspalum is also a dominant species. Common introduced grasses include bermudagrass, bahiagrass, weeping lovegrass, and kleingrass. Recently the old world bluestems have been introduced into this region. In these areas and further east, hay production is important because of the inability to sustain standing forage during the winter months.

In the Blackland Prairies and Post Oak Savannah east of 1-35, tall fescue is planted as a cool-season perennial. Cool-season annuals are also important forages for livestock grazing. Rye, wheat, and ryegrass are planted as monocultures or mixtures on prepared seedbeds. Another common practice is to drill these forages into existing bermudagrass sod to produce grazing primarily in the winter and spring. Clovers are also used in the pasture mixtures to improve forage quality and reduce nitrogen fertilizer requirements. In the southern areas of these regions, oats are a main source of winter grazing for stocker cattle production. Soils in the Blackland Prairies have the potential to produce large quantities of winter forage from annuals or fescue. Grazing in the winter and spring is often limited by muddy, boggy conditions in the pastures and fields.

Piney Woods

Introduced pasture, cultivated cropland, and forests dominate this area of East Texas. Precipitation ranges from 35 to 50 inches falling primarily as rain in the spring months. Cattle production depends primarily on intensive grazing of introduced pastures coupled with hay production for winter forage. Bermudagrass and bahiagrass are the predominant introduced perennial grasses. Tall fescue is also common in some areas. Many pasture systems will include clovers overseeded into the perennial grass. Ryegrass is managed to reseed itself and provides substantial forage. Rye is also used for winter grazing and is commonly drilled into existing pasture sods. With proper planning and management, extended periods of grazing on high quality forages are possible and a valuable means of growing calves to heavier weights.

Gulf Prairies and Marshes

This humid region extends from the Louisiana border to Mexico and is divided into the Gulf Marshes and Coastal Prairies. The Marsh is low lying land next to the coast while the Coastal Prairie is a nearly level plane with slowly drained soils. Rainfall ranges from 50 inches in the east to less than 30 inches in the west. High humidity, warm temperatures, and long growing seasons characterize this area.

On well-managed sites, coastal prairie range vegetation will include big bluestem, seacoast bluestem, switchgrass, and Indiangrass. Introduced pasture species in this area include buffelgrass, kleingrass, bermudagrass, bahiagrass, and KR bluestem. Ryegrass and clover are also forages that can be used in some of these areas to improve the quality of grazing. In rice producing areas, grazing rice fields following grain harvest may also be a source of forage for cattle grazing. In the higher rainfall areas, hay and possibly grass silage production is necessary to provide forage during the winter months.

South Texas Plains

Rainfall in this region varies from 16 to 35 inches per year. Precipitation occurs primarily in May and June. Periodic droughts are common. Potentially, these areas are highly productive grasslands or savannahs. However, range livestock production is limited by heavy brush infestations. Stocker cattle production will use both warm-season forages and cool-season forages. Often, stocker cattle are a drought buffer for cow/calf operations. Rangeland grass species can include, depending on site and location, a mix of short- to mid- and tallgrass species including, among others, bluestems, bristlegrasses, Arizona cottontop, buffalograss, and grama grasses. In salty areas, cordgrass, alkali sacaton and saltgrass are predominant.

Introduced grasses grown in this region include kleingrass, buffelgrass, Willman's lovegrass, bermudagrass, and some old world bluestems such as KR bluestem. Cultivated crops providing grazing in this region include primarily oats, wheat, and ryegrass while other small grains and sorghum stubble are also utilized.

Edwards Plateau

This area of west-central Texas, known as the Hill Country, is used primarily for range-land with cultivation limited to areas in valleys and near water. Annual precipitation is 15 to 33 inches.

Potential vegetation would be the tallgrasses but generally rangeland vegetation is predominantly shortgrasses and midgrasses. An important species in this area is Texas wintergrass, a cool-season perennial that contributes to cattle nutrition in the winter. Most livestock operations in this region combine cattle, sheep, and goat production. Wheat pasture is a primary forage for winter stocker cattle grazing. Some stocker cattle grazing occurs on native pastures in the summer. Again, stocker cattle are an important drought buffer for cow operations in this region.

Trans Pecos

This region is characterized by extremely diverse environmental conditions. Most of the region receives less than 12 inches of precipitation that is extremely variable. Except for small pockets of intense irrigated cropping, the area remains as undisturbed native rangeland. Introduced forage production is limited and would primarily include lovegrasses on revegetated areas. Native forages include black grama, blue grama, green sprangletop, tobosagrass, and alkali sacaton as well as others. Rangelands dominated by black grama are among the better grazing resources in the southwestern United States. Although cow-calf operations are predominant, stocker cattle offer a frequently overlooked opportunity to diversify. Attempting to efficiently match beef production to the sporadic rainfall in this area requires stocking rate flexibility. Stocker cattle complement cow-calf operations in managing this flexibility.

GRAZING-STOCKER MANAGEMENT

Management: A skillful manager should recognize all of the variables in the management of land, people, and livestock. As the old saying goes, "getting all your ducks in a row" will always be the key to the success of a forage and livestock operation. The first requirement of a manager is to know the capabilities and limitations of all the resources he has to work with. Resources should be defined in three areas: land, people, and finances.

- Land Resources: Knowing the land resource is to know the production capability of each class of soil, its plant nutrient supplying ability, and the acreage of each class.
- **People Resources:** People have different talents. It is important to know the strengths and weaknesses of each employee. Often those that care for the land will have less interest in the livestock or vice versa.
- **Financial Resources:** A financial plan should be constructed so that you know you can accomplish the financial goals of the operation. This will allow you to make proactive decisions involving livestock and pasture management.

Plant Species: Plant species have different levels of palatability. Palatability refers to the preference of grazing animals to choose one species over another or certain plant parts such as tender leaves verses stems. Plants that are said to be palatable are most generally high quality forage and vice versa.

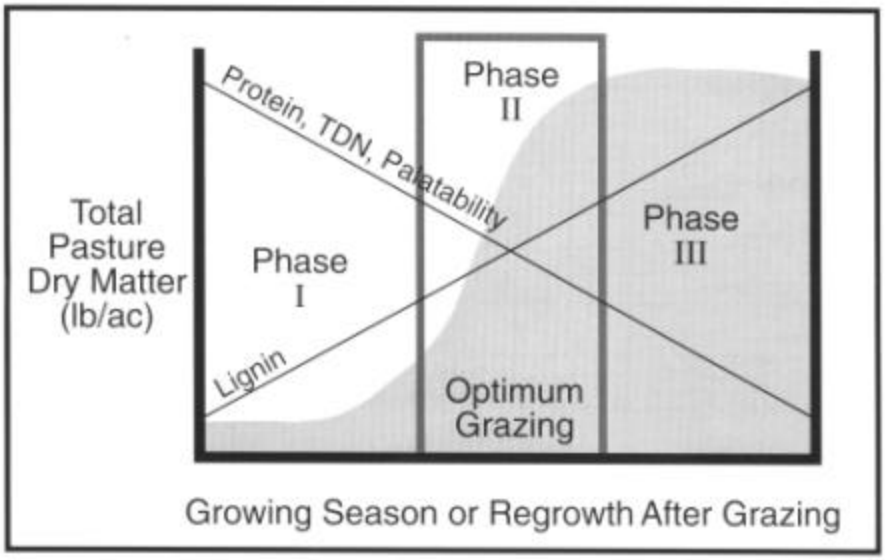
Stocking Rate: Correctly determining stocking rate is extremely important in livestock production. Pastures must have sufficient forage available so the animals can quickly satisfy their appetites. A minimum of about 800 pounds of dry forage per acre is required for an animal to satisfy its required daily intake of selected forages.

Seasonal Variation: The digestibility of warm-season perennial species is highest in the spring before declining to a low level in

mid to late summer. High temperatures will lower digestibility by causing a plant to mature. As a plant matures it begins to lignify. Crude protein and digestibility decrease below the level necessary to sustain adequate animal performance. Yearling steers require forages in the 10-12% protein range and 65-70% TDN range to gain 1.5 pounds per day. Seldom will warm season perennial grasses test this high in July and August.

Plants can be divided into three distinct growth stages (Figure V). Grazing plants in growth stage II optimizes the quantity and quality of harvestible nutrients while still maintaining good animal performance.

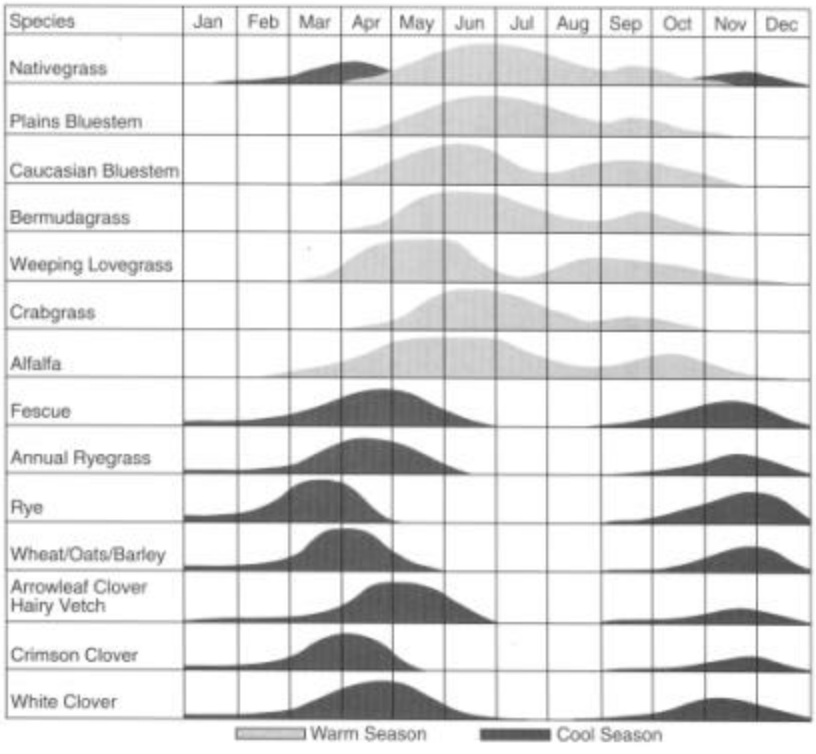
Figure V. Phases of Plant Maturity



To maintain this optimum stage of plant growth, one must constantly monitor temperature, available moisture, the rate of plant growth and its maturity, fertility, and stocking rate/ density to effectively reach their production goals.

Integrated Forage Systems: There are variations in growth and rates of maturity between warm and/or cool season forages (Figure VI). If retained ownership programs are to be developed, careful consideration should be given to establishing a diverse forage base that can provide high quality forage at times when higher rates of gain are needed or desired. Matching the proper quantity and quality of forage to the nutrient requirements of livestock can be one of the most efficient ways to become profitable in today's market.

Figure VI. Seasonal Growth Curves of Selected Forages in South Central Oklahoma



By establishing a diverse forage base, quality forage can be available throughout the year with the exception of mid-summer; however, with proper stocking rates, adequate forage will be available during this time of low quality forage. Deficiencies in quality, normally protein content, can be corrected with low levels of a high protein supplement. The key to your success will be to supply enough forage (quantity and quality) to meet the demand by livestock or to supply enough livestock (proper kind and class) to match the forage produced.

Management Techniques: There are several tools available to producers who want to retain calves into a stocker or feeder operation. When calves are retained into the feeder phase, there are numerous experts and consultants to take over day-to-day management when cattle are placed in a commercial feedlot.

If calves are retained into a stocker operation, there is no such group of support staff and highly trained professionals to provide information and instructions on major production decisions. Decisions on use of supplements and cattle treatments can make big differences in rate of gain, health, marketability, and income. Improper application of some of these techniques can yield adverse results. Supplementing grazing cattle can boost gains on winter or summer forages. However, supplementing too much can cause excessive flesh which can increase cost of gain and reduce value and marketability of feeder cattle. Supplements should be fed to complement the forage base and only led at levels to balance out the nutrient content of the forage or to provide acceptable and profitable gain.

Another reason for providing supplements, whether it be protein, energy, or mineral supplements, is as a carrier for additives such as ionophores or antibiotics. Ionophores can boost rate of gain, help control coccidia and, as a side benefit, they can reduce the incidence of frothy bloat in grazing cattle.

Implants are another tool that must be used under the proper scenario for them to be profitable. The higher the plane of nutrition and the faster cattle are gaining, the greater the response to implants. In cattle on a marginal to negative plane of nutrition, implants can actually yield negative responses and reduce rate of gain below levels which would be obtained with non-implanted cattle.

Nitrogen Fertilization: Introduced grass species respond favorably to nitrogen fertilization. Applications of nitrogen fertilizer to grasses will increase the crude protein content, up to a point, assuming all other nutrients are adequately supplied.

Prescribed Burning: Late winter and early spring burning on warm-season perennial grass will rid an area of the previous years accumulation of plant residue. This will help stimulate new growth of high quality forage; therefore, animal performance can be increased during spring and early summer. During late July and August, plants may be of less quality due to accelerated moisture stress caused by litter being removed from the soil surface. Even though animal performance is increased, stocking rate may decrease due to a decrease in forage production from plants being stressed for moisture.

Stockers: The stocker or grazing option of carrying calves from the cow herd to a pasture system can be a program of grazing winter forages, summer forages, or a combination winter to summer or summer to winter pastures. The two most important items of the grazing program are rate of gain and cost. However, there are many variables that influence animal performance such as:

- Age (calves or yearlings)
- Body condition
- Weather conditions
- Overall cattle and pasture management
- Genetics
- Pasture quality and quantity
- Health

It is possible to make long term (100+ days) pasture gains exceeding 2.5 pounds per day but this would be very exceptional. The most common rate of gain will fall in the 1 pound to 2 pounds per head per day range. The cost of gain on pasture will normally be less than preweaning or feedlot gain, but there are times that this will not hold true. The always true statement addressing both rate of gain and cost of gain in any given time period or situation is "it depends"!!

FEEDLOT

The "feedlot" has a tendency to intimidate the vast majority of cow-calf producers. The reason for this is two fold. First, most cow-calf producers are not knowledgeable about the feedlot or feeding industry and, second, far too many cow-calf operators do not know how the calves they are producing will gain in the feedlot or how they will kill (quality grade/yield grade/carcass weight). The genetic ability for growth and carcass merit is unknown. The best way to address both issues is take time to study and learn both the feeding industry and the genetics of the cattle you are breeding. A relatively low cost/low key means to learn from is the utilization of Oklahoma's OK Steer Feedout or Texas A&M's Ranch to Rail that is available to every cow-calf operator in the state of Oklahoma or Texas. Programs are available for spring and fall calving operations. The educational opportunity is excellent. Some of these state's best university personnel are available to help give this education. Participants have the opportunity of working with and being associated with some of the leading cow-calf producers. The value of using this program cannot be over-emphasized.

If we know our cattle's performance and marketability, the feedlot is a means of increasing total return for our product. Once the economic decisions have been made to retain ownership and feed the cattle, the next step is to select a feedyard. Seek information from others who feed cattle and visit several feedyards. Get references from others who are feeding with the yards you are considering. Finance availability, management, services offered, location, and any other factors that have a bearing on your cattle feeding should be considered.

SUMMARY

Producers must be honest with themselves about their knowledge and management ability before considering any retained ownership possibility. The stocker and feeder phase of this industry is extremely volatile. Inexperience or inability in reacting to changes in the climate, market fluctuations, or marketing alternatives can erode a significant portion of a cow-calf operator's equity. Operations currently operating on marginal equity positions should not enter retained ownership programs without some form of risk-management in place. Forward contracting, contract grazing, options, hedges, etc. should guarantee at least a small profit before entering any retained management program.

Producers with more liquid assets can take greater risks without jeopardizing the long term survivability of the operation. Downside potential is tremendous. Enter a retained ownership program with caution and careful planning. A low market is not a signal to enter a retained ownership program. Markets can go even lower with devastating financial results.

Retained ownership is an option the cow-calf operator of the future must make available to the operation to increase the chances and opportunity of operating at a profitable level. To be able to take advantage of retained ownership at the lowest risk possible, these things are an absolute must:

- **Know your production cost!**
- **Know your cattle!**
- **Know your forage system!**