Fowler Seed Marketing

Serving your Seed & Soil Fertility Needs Since 1995

Forages for Beef

Your Local FSM Dealer:

Table of Contents:

SCAN FOR
Digital Version

Fowler Seed Marketing
Rock Creek, OH 44084

FSM Brand

888.249.SEED
www.fowlerseed.com

Beef Forage Economics

Any conversation about enterprise profitability begins with an understanding of the potential income of that enterprise. The economic realities of the cow-calf business are that on average 90 to 95 percent of the cows in a herd will wean one 4 to 500 pound calf per year.

In a commercial herd, that calf is worth about $5. - $600. A few purebred individuals or club-calves may raise the herd income average, but budgeting based on the feeder market is a safer plan. A stocker enterprise generally has to overcome a bit of a price slide so budgeting on potential income of $1 per pound of gain is a good ballpark number.

Grass-fed or grass-finished beef and other direct marketing efforts often enjoy somewhat of a retail premium; however, most of the portion above the fat cattle market should be considered a return to marketing.

Again, if you're not watching fed cattle futures 12-months out, I suggest using $100. - $105. per live hundred weight for a fed cattle income budget. Obviously, actual income for a given herd will vary; however, having a good estimate of potential income is essential for keeping expenses in line. Feed is the single largest expense line item in any beef enterprise.

It takes 6.5 tons of dry matter to keep a 1200 pound cow for one year. Fortunately, her protein and energy requirements are low, except during late gestation and the first few months of lactation. To fit most budgets, that cow needs to eat for about $1 per day. Rate of gain in stockers is directly related to intake of appropriate quality feed. The nutritional requirements for young animals are higher than mature cows; however, keeping feed cost below $.75 per pound of gain is necessary for a profitable stocker enterprise. Finishing cattle need a constant, adequate supply of high energy feed. In addition to feed cost, time and financing become major factors in this enterprise.

Average daily gain of 1.63 pounds results in a 245 day (8 month) feeding period to take an animal from 800 to 1200 pounds and justifies up to $85 per ton forage on a dry matter basis. Every .2 pound decrease in ADG adds a month to the finishing period and about $5 per head in interest.

On the other hand, higher energy forage not only justifies higher production cost but reduces finishing time and financing cost. Properly utilizing appropriate quality forage is key to keeping feed cost within acceptable parameters for each segment of the beef enterprise.

Forages can be a cost-effective feed source when appropriately allocated in a beef enterprise. Factors effecting the cost of forage production include: land rent, equipment, fencing, seed, fertilizer and yield. Land cost per acre is best defined by rental value.

As a general rule, the cost of production for pasture is about half that of hay of similar tonnage and quality.

A cow herd is necessarily a consumer of otherwise unusable resources which are generally available at a relatively low cost per acre. Every $30 increase in rent per acre needs to result in at least one-half ton additional forage to off-set the higher land cost.

Beef Forage Economics

High cost land with increased yield potential justifies greater levels of input (including annual forage production) because increasing tonnage is the most effective way to dilute higher cost in terms of cost per ton. Equipment cost can quickly absorb all profit potential from a beef enterprise.

Sharing equipment primarily used in another enterprise (ie. Commercial hay, grain, etc) can keep the beef budget in the black. It is very difficult to justify $100 to $150,000 of tractors and hay equipment with a cow herd of any size unless tonnage is very high (7.5 tons per acre or higher).

Even when shared, equipment costs per ton of forage produced are 3 to 5 times higher than the cost of fencing.

As a result, the cost of baling and wrapping a field is about twice the cost of pasturing it. Although there are times where stored feed is necessary and perhaps preferable to pasture for achieving growth goals, maximizing the use of animal harvested forage and minimizing equipment cost are key to most profitable beef operations.

Improved seed genetics impact the yield and quality potential of a field with minimal impact on the bottom line. Even a slight increase in tonnage covers the cost of adding clover to an existing pasture or hay field. A one-half ton increase in tonnage per year more than pays for the seed cost of renovation.

Annual forages have the highest seed cost per acre, but similar production cost per ton as perennial hay. Strategic fertilization can enable improved forage genetics to reach their potential and improve stand health, forage quality and season-long yield in existing stands.

Beef Forage Economics

The expected season-long increase in yield generated by our bio-enhanced fertility program typically reduces the forage production cost per ton while increasing the value by enhancing the quality up to 50 points of Relative Feed Quality (RFQ).

Especially in stocker and grass-finishing enterprises, forages capable of high tonnage and energy density are essential for supplying the nutritional needs to grow these cattle in a timely way.

FSM Brand

HQ-O Pasture Mix

Formulated to offer both rapid establishment and multiple seasons of high quality rotational pasture or hay production, a well managed stand of HQ-O can be expected to provide at least 4 to 5 years of high quality hay or pasture on moderate to droughty soils over a full range of soil fertility conditions with consideration for weather extremes.

From an economic perspective pasture should have an important role in every beef enterprise. Obviously, pasture days are limited by weather and land availability; however, at $15 to $25 per month every day that a beef cow is grazing is a profitable day. Disciplined management is necessary to maximize grazing days per year.

Important grazing principles include:

- **Turning cattle in at 10 to 12 inches**
- **Pulling them out at 6 to 8 inches of sward height**
- **Fertilizing to keep grasses green and growing, not dormant**
- **Minimizing compaction by keeping cattle off pastures that are too wet**

With stockers, pasture is easy enough in spring and early summer; however, increasing daily consumption together with slowing pasture production during mid to late summer can make management difficult.

The same acre with one ton of harvestable growth feeds (17) 400 pound calves in late April, but only (5) 800 pounders in September! It is essential to avoid 'stall-outs'

Beef Forage Economics

(days in which animal intake and nutritional requirements are not being met) because these days have a multiplying negative effect on total gain. Likewise, finishing cattle on pasture requires a lot of cooperation from the weather.

Not only does daily intake increase by up to 50% during the feeding period, but greater damage occurs to the pasture if stock are allowed to over graze or be on the field when conditions are too wet.

In addition, low temperatures and exposure to precipitation in the winter increase the amount of energy that goes to maintenance and reduce the amount available to fuel gain. 'Stall-outs' are expensive because they extend the time it takes to finish an animal. Therefore, it may be wise to consider pasture a valuable tool in the plan, rather than the 'plan' for finishing beef.

Stored feed (dry hay or balage), while more expensive to produce than pasture, has an important role in each of the beef enterprises we are examining. For the cow herd, hay is the bridge between grazing opportunities. At 2 to 3 times the cost per ton of pasture, it should only be fed when absolutely necessary.

Fair quality hay can be utilized during early and mid-gestation. Medium quality hay is required in late gestation and during lactation. For stockers, a limited amount of high-quality hay should be available as insurance against 'pasture outages' (days when cattle can't or shouldn't graze). If pasture is part of the plan for grass finishing then high-quality balage is generally the other part during the grazing season and the complete ration during winter or while in dry lot.

Moderate quality hay can also be utilized when grazing lush pastures to slow down the rate of passage and increase nutrient utilization. Stored feed, therefore, is a useful tool for maintaining intake during low ebbs in pasture production.

In summary, beef cows need to be fed for less than $1.10 per day which requires maximizing days on pasture to achieve.

Stockers need a consistent supply of adequate quality forage, preferably good quality pasture, such that they gain at least 1.75 pounds per day at the cost of about $1 per pound of gain.

Likewise, finishing cattle require even greater quantities of energy dense forage to achieve acceptable finish in a reasonable amount of time. Therefore, well managed, improved forages are essential to profitable beef operations.

To learn more about to applying these principles on your farm, visit your local FSM dealer or call Kevin Fowler at 888.249.SEED

Forages for the Beef Cow Herd

Most beef cow herds in Ohio and surrounding states either calve in the spring (March through May) or the fall (September through November). With minor differences, cows in both produce one calf worth about $500 at weaning; therefore, feed cost per cow needs to be around $1 per day on average.

Since hay equipment is 3 to 5 times the cost of fence resulting in mechanically harvested forage being about twice the cost per ton of animal harvested feed, it is generally most-profitable to graze as much as possible.

Nutritional requirements of mature beef cattle are significantly less than growing stock. However, those requirements change as the cow progresses through the following stages: early lactation, late lactation/early gestation, mid-gestation, and late gestation.

To meet her nutritional needs while minimizing cost, it is imperative to understand how to grow and allocate appropriate quality forages to the cow herd. The time of year that a cow is passing through a given stage obviously depends on when the herd calves, but similar forages managed and allocated a little differently can work for both types of herd.

During January through March, spring calving cows are in late gestation (increasing requirements) while fall calving cows are in late lactation / early gestation (decreasing requirements). In both cases, any residual stock-piled pasture, fall planted small grain forage, crop residue or brassica can be utilized as soil conditions allow.

Colder temperature increase energy requirements. With spring calving cows, feed quality and body condition should be monitored with any deficiencies being made up with stored forages.

In many cases during this window, stored feed will be used to sustain the cow herd.

Fair to moderate quality hay, BMR sorghum silage (**FSM Brand Silo Candy BMR**) or balage (**FSM Brand Cow Candy II BMR**) and corn silage (Masters Choice) generally provide adequate protein and energy. The main difference between a spring and fall calving herd is the trend in requirements; low to moderate and moderate to low respectively.

The term 'spring flush' is often used to refer to cool season pasture growth from April into June. This proliferation of grass fits perfectly with the needs of a spring calving herd, if properly managed.

We recommend applying the early spring foliar portion of our **FSM Bio-Enhanced Pasture Fertility Program** to address several potential issues:

- **Magnesium deficiency (grass tetany) and Low energy (washy) forage**
- **Trace mineral deficiencies. Trace minerals such as zinc (which helps with Phosphorous uptake and the animal immune system)**
- **Cool soil temperatures restrict the availability of Magnesium and Phosphorous**
- **Excessive moisture and nitrogen alone can create forage volume without substance**
- **Forage with inadequate absorption levels of:**
  - **Manganese…** important in reproductive hormone cycles
  - **Copper…** impacts calf health and growth rate

In operations with insufficient pasture acres, fall-planted triticale (**Trical Brand Flex 719**), rye (**Aroostook**), spring-planted forage oats (**FSM Brand Banquet forage oats**-fall calving) or forage oat-pea mixtures (**FSM Brand OPTimum II** forage blend-spring calving) can be utilized to minimize the acres needed to carry the cow herd.

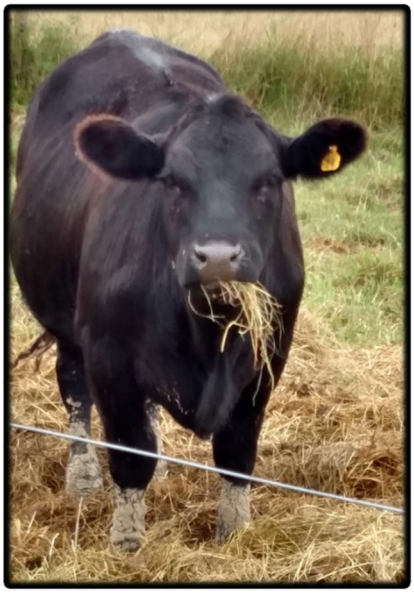
Weaned fall calves should be given the best spring grass with the fall calving cows cleaning up soiled or more mature pasture. Stored forage should only be used during this window when it's too wet or grazed forage is

unavailable. Fresh spring cows need moderate quality hay or haylage. Fall cows can utilize low quality hay during this window.

Grazers refer to the 'summer slump' when the combined effect of grasses restarting the growth cycle, an increase in hot, dry weather and perhaps some management errors result in pasture shortages. This is the window when animal-friendly endophyte enhanced, soft-leafed tall fescue (**BarOptima + E34**) shines because the endophyte increases the heat and drought tolerance of the plant resulting in sustained production.

Well-fed pastures such as those receiving the late spring application of our **FSM Bio-Enhanced Pasture Fertility Program** tend to remain green and ready to translate rainfall into growth. Various other products can be planted for grazing during this window.

Perennial warm season grasses (switchgrass, indiangrass, eastern gamagrass), warm season annuals (**Cow Candy II BMR** sorghum-sudan or **Dessie's** teff), Italian ryegrass (**Green Spirit** or **FSM Brand Green Gold**) for cows in late gestation, forage rape (**T-Raptor**) which is usually planted with BMR sorghum-sudan or even red clover (**FSM Brand Wildcat**) established in a small grain stubble.



Stored feed of appropriate quality should only be used if conditions are too wet or pastures are too short for grazing or to slow-down and stretch high-protein pasture. The fall calving cows need an increasing plan of nutrition as they move toward calving. Cows that calved in spring have decreasing needs as their calves approach weaning.

The last quarter of the year is perhaps the most challenging for herd managers because the weather can be extremely variable and because the primary focus of many farmers is grain harvest, especially for those who are also calving during this window.

Grazing options can range from stock-piled cool-season pasture and unharvested hay, early in the window, to annual forages, planted in late summer or early fall, and crop residues later.

Combinations of triticale (**Trical Brand Flex 719**), forage oats (**FSM Brand Banquet**) and turnips (**Barkant**) seeded in August or September are usually ready for use in November and December.

Corn stalks can be utilized best by spring calving cows with lower requirements unless interseeded with Italian ryegrass or any of the above suggested combinations to make the forage suitable for early lactation cows.

Cows with young calves and those soon to calve require stored feed with moderate energy and protein levels to support lactation when appropriate grazing is not available or soil conditions are too wet.

Corn silage (**Masters Choice**), BMR sorghum silage (**FSM Brand Silo Candy BMR**), BMR sorghum balage (**FSM Brand Cow Candy II BMR**), and oat-pea balage (**FSM Brand OPTimum II**) are all energy dense products that can support cow performance when stored feed is necessary.

Whether a herd manager has a fall or spring calving herd, the challenge is to meet their nutritional requirements while keeping feed expense in-line, typically by maximizing grazing days, and while being prepared to feed appropriate quality stored feed when necessary.

To learn more about to applying these principles on your farm, visit your local FSM dealer or call Kevin Fowler at 888.249.SEED

Forages for Beef Stockers

Beef stockers are typically 4 to 500 pound weaned calves that are purchased or contracted for 6 to 8 months with the goal of maximizing inexpensive gain on forage before moving to a feedlot for finishing.

A reasonable goal is to average at least 1.75 pounds of gain per day at a cost of $.75 per pound of gain or less. Fall calves are ready to be put on grass in April for fall delivery to the feedlot. Spring calves are usually weaned in the fall and put on crop residues planted with annual forages or stock-piled fescue. In areas where mud is a major issue, feeding stored feed in a dry lot may also be an option.

Compared to finishing cattle, stockers require a lower percentage of their consumed energy for maintenance, giving opportunity for faster gains with high-energy forage. Conversely, these animals require a higher percentage of consumed protein than older stock.

Therefore, forages with a higher portion of legume are better suited to meeting the nutritional needs of stocker cattle.

Perennial pastures containing ryegrass, meadow fescue, soft-leafed tall fescue, alfalfa, trefoil, red clover, and white clover are generally well-suited for grazing stockers. **FSM Brand HQ-F, HQ-W and HQ-P** are different combinations of these species designed for specific soil and drainage conditions, but well suited for producing the nutritional quality needed by rapidly growing stockers.

In areas with unimproved fescue, grazing stockpiled legume-fescue pastures may provide adequate nutrition for good gains. In both cases, well fed pastures will have a higher nutritional level than ones poorly fed or fertilized with an imbalanced program. Our **FSM Bio-Enhanced Pasture Program** has been shown to increase season long yield and raise Relative Feed Quality by up to 50 points.

In any pasture system, planning for dry weather by planting enough summer annuals, like **FSM Brand Cow Candy II BMR** sorghum-sudan, to feed the stock for at least one month is wise preparation. In areas with higher land cost, annual forages are often used to feed more animals on less acreage. **FSM Brand OPTimum II** forage blend can be planted in early spring for late grazing.

It can be followed by **Cow Candy II** when soils reach 65 degrees F. **Cow Candy II** requires two-thirds less moisture than corn to produce a full yield and can be cost-effectively be planted alone or underseeded with **Barkant** turnips or **T-Raptor** rape through mid-July.

Forages for Beef Stockers

These brassicas can also be planted with **FSM Brand Banquet** forage oats after wheat or other small grain has been harvested for mid to late fall grazing.

However, squeezing another day out of swards that are too short or too wet or too mature will reduce the season-long production and may seriously damage the stand.

Moving temporary fence often helps to maximize utilization and minimize waste. As with other pasture systems, plan ahead for weather contingencies with appropriate quality stored feed.

Beef stocker cattle provide excellent profit-opportunities when provided with appropriate quality grazed forages supplemented as needed with similar stored feed.

Finally, several fall planted small grain forages can be used for light winter and early spring grazing followed by additional grazing or mechanical harvest.

Trical Brand Flex 719 triticale has the best forage quality profile and can be planted through September.

Aroostook rye is the preferred grain rye for cover crop or forage use, especially when planting extends later than mid-October.

High quality annual forage that exceeds the daily intake needs for grazing can be harvested as balage for use during 'pasture outages'.

Pasture has about one-half the cost of production of hay or balage.

Because pasture has about one-half the cost of production of hay or balage, it is most profitable to maximize the use of this animal harvested forage.

To learn more about to applying these principles on your farm, visit your local FSM dealer or call Kevin Fowler at **888.249.SEED**

Forages for Grass Finishing Beef

To successfully finish beef cattle on forage, it is necessary to understand three things:

1. **Time is your enemy**
2. **Digestible energy drives gain**
3. **Dry matter intake limits gain**

Every day that a beef animal is on feed costs money. Twenty 1000 pound animals will consume an average round bale every day (30 pounds of dry matter). A significant portion of the energy consumed on a daily basis goes to maintenance, more when temperatures are cold.

Table 1: NRC Energy Requirements for Beef Finishing

Weight	NE-m	NE-g	NE-t	Intake
770	6.23	4.13	10.36	23.1
880	6.89	4.57	11.46	26.4
990	7.52	4.99	12.51	29.7

NE-m is the Mcals of energy required for maintenance at moderate temperature. NE-g is Mcals of energy that can be utilized for gain. NE-t is the total Mcals of energy needed by the animal for maintenance and maximum daily gain.

Only the excess energy beyond maintenance is used for growth. To put 400 pounds on a finishing animal in 7 months requires an average daily gain of 2.0 pounds per day. To maintain carcass desirability, the animal has to reach physiological maturity between 18 and 30 months.

At 6% interest, it costs about $4.60 per month to finance a finishing animal.

Therefore, constant availability of energy-dense forages is the key to producing an acceptable grass finished animal in a profitable time frame.

Forages capable of supporting the daily energy requirements of finishing beef cattle are generally limited to improved varieties of selected cool-season grasses, forage-type small grains, BMR sorghums and forage brassicas.

Combinations of Italian ryegrass, perennial ryegrass, soft-leafed tall fescue and meadow fescue work best for multi-year pasture and hay fields. **FSM Brand HQ-F** contains the best available varieties of these species from **Barenbrug** (the world's largest grass seed company).

When adequately fed and properly managed, cool-season grasses can provide the quality pasture and hay basis for grass finishing beef. Both spring and fall planted forage oats and triticale are quick potential sources of high-yielding, energy-dense forage.

FSM Brand Banquet forage oats can be planted in spring typically for balage or in late summer with either **Barkant** turnips or **T-raptor** rape as fall and early winter grazing.

Trical brand Flex 719 triticale can also be planted in spring or early fall for spring grazing or harvest. These forage small grain products respond both in yield and energy content to our **FSM Bio-Enhanced Small Grain Fertility Program.**

An energy boosting fertility program is especially important on small grain forages to maximize digestible carbohydrate production and maintain plant health, essential characteristics for high-quality small grain forage. Brown Mid-Rib (BMR) forage sorghum [**FSM Brand Silo Candy PS**] or BMR sorghum-sudan [**FSM Brand Cow Candy II BMR**] can be planted as soon as soils reach 65 degrees F.

Silo Candy PS is best-suited as a one-cut high energy silage or balage. It will typically out-perform late planted corn silage in yield and has tested off-the-chart in energy **(.76 NE-m, .48 NE-g)** even without any grain content! Likewise, **Cow Candy II BMR** produces similar energy levels in a two-cut balage or grazing system.

One acre of **Cow Candy II,** alone or underseeded with a brassica, can feed twenty 1000 pound animals for about 10 days as an energy-rich drought-hedge for mid to late summer.

Forages for Grass Finishing Beef

Producing enough high-energy forage to grass finish beef is a challenged that can cost-effectively be fulfilled by the synergy of modern forage genetics fed with a balanced, quality enhancing forage fertility program.

Having a workable, comprehensive forage plan that maximizes utilization of lower cost grazing options while being prepared for weather contingencies is necessary to turn theory into profitable practice.

If you're planning to grass-finish beef, put this phrase where you see it regularly, **"Full-feed, every day".**

If perennial pasture is part of the system, observe the following

- **Only graze when the soil is dry enough to minimize compaction**
- **Only graze when the sward has adequate growth**
- **Only graze finishing stock when the quality is sufficient for animal growth.**

Likewise with pasturing annuals, apply these principles:

- **Limit access to what can be consumed in a day to minimize waste**
- **Only graze when soil conditions allow**
- **Only graze finishing stock when the forage quality is sufficient for growth**

Be prepared to utilize high-energy stored feed when it's too wet, too short or too old to graze.

Keep some moderate quality hay on-hand to mitigate protein-rich forages by slowing the rate of passage and improving nutrient absorption.

Begin to think of a plant nutrition program as a system building tool rather than a switch to be flipped when forage is short. Typical dry fertilizer programs may stimulate short-term visible results but can create detrimental nutrient imbalances and shock both the plant and soil, creating opportunity for disease.

Our FSM Bio-Enhanced Forage Fertility programs are field-proven to increase season long yield, documented to significantly increase forage quality, and observed to improve both plant and soil health.

Take the time to have the forage analyzed. Only feed pasture or stored feed with adequate digestible energy for growth to finishing animals. Be prepared for drought and excessive rain in the summer.

Use shade and water to minimize 'recreational damage' to pastures and maximize daytime consumption of stored feed in the summer. Encourage evening and nighttime grazing to maximize intake. Consider means of improving winter efficiency by reducing exposure to precipitation and mud in the winter.

In short, profitable, timely beef finishing without grain is possible but requires full-feed of high-energy forages every day regardless of the weather.

A Note from Kevin . . .

. **Kevin Fowler**

"As a long-time cattleman myself, I have experienced many of the challenges addressed in this catalog and found the solutions presented to have a high rate of success.

With that said, I find it much easier to 'know' what needs to be done than to consistently put it into practice!

While many of principles discussed may seem like 'common sense', I hope they will stimulate you to consider ways that you can make your beef enterprise more profitable by better utilizing forages."

Kevin Fowler received his BS in Agriculture, majoring in Animal Science, in 1986 and his MS in Agricultural Economics in 1989 both from The Ohio State University (OSU). His master's thesis "An Initial Inquiry into the Circumstances Affecting Profitability Among Modern Cow-Calf Enterprises in Southeastern Ohio" co-authored with Dr. Thomas Stout became one of the seminal works in the various 'improved grass' and 'grazing' initiatives of the OSU Extension and the Natural Resource Conservation Service (NRCS) in Ohio.

After several years of sales work in the seed, fertilizer and feed industry, Kevin and his wife, Laura, started Fowler Seed Marketing, a family business devoted to bringing the best available forage products to clients in and around Ohio. Along the way, their understanding of soil fertility and plant nutrition developed through their relationship with AgriEnergy Solutions of Princeton, IL. As a company, AgriEnergy is devoted to improving the nutritional value of food and feed crops using biological tools and methods.

Kevin & Laura both grew-up with livestock. Together with their seven children, they have direct marketed freezer beef, lamb, pork and farm-fresh eggs since the mid-1990's. They have always used the products they sell, gaining valuable insight into the benefits and challenges of new products and methods. Both have over 40 years of experience with various beef cattle enterprises including several different feed and forage management schemes.

Today, Kevin serves as VP of Sales & Marketing for Fowler Seed Marketing which provides marketing and consulting support as well as high-quality forage products and fertility programs to maximize their genetic potential for a network of clients and dealers in and around Ohio as shown to the right.

Kevin also currently serves as Chairman of the Board of Managers for AgriEnergy Solutions LLC, a dealer owned company focused on utilizing beneficial microbes to regulate nutrient availability, enhance plant health and improve forage and grain quality for the benefit of all that consume them.

To locate your closest Dealer, go to
www.fowlerseed.com

Become a FSM Preferred Customer and Save an Additional 2%

To become a FSM Preferred Customer, and get your 2% discount today simply go to www.fowlerseed.com and subscribe to our E-Newsletter.

Start Saving 2% as an FSM Preferred Customer Today!

Subscribe to our FSM Preferred Customer e-newsletter and you will start saving an additional 2% on each order!

First Name

Last Name

Email

Subscribe

Many cattlemen look forward to our periodic e-newsletter featuring timely information to help them plan and execute their forage plan in support of their beef enterprises.

QUICK REFERENCE Seeding Rate Chart

FSM Brand Products

		Seeding Rate per Acre
HQ-F Pasture Mix	Pasture mix for all species of livestock, all soil types.	35-40# (10-20#, overseeding)
HQ-O Pasture Mix	Grassy hay or pasture, lighter soils.	35-40# (10-20#, overseeding)
HQ-R Pasture Mix	Beef or dairy cattle, soils with 3% or more organic matter.	35-40# (10-20#, overseeding)
Early Riser Timothy	**New!** Early maturing, leafy and persistent! Higher yields!	8-10# (4-6#, mixture)
Sleepy Head Timothy	Later maturing, very leafy and winterhardy, excellent yield!	8-10# (4-6#, mixture)
Mary Meadow Fescue	Soft, highly palatable bunch grass, excellent digestibility.	30-35# (20-25# haylage)
Snowbelt Orchardgrass	High yielding, winter hardy, disease resistant, drought tolerant.	25# pasture (10-12# dry hay)
414-BR Alfalfa	Branch-rooted, improved forage quality, excellent disease resistance.	15-18# (10-12#, mixture)
417-ML Alfalfa	High yielding, higher leaf/stem ratio, great disease package.	15-18# (10-12#, mixture)
514-ML Alfalfa	High yields of high quality, disease resistant alfalfa.	15-18# (10-12#, mixture)
HQ-P Hay Blend	High quality grass/legume hay blend for poorly drained soils.	30-35#
HQ-W Hay Blend	High quality alfalfa/grass hay blend for moderate - well drained soil.	30-35#
Wildcat Red Clover	Persistent, high yielding and disease resistant.	8-10# (4-6#, mix, overseeding)
Reddy Red Clover	Two-Year variety. Rapid establishment, Good tonnage.	8-10# (4-6#, mix, overseeding)
Cow Candy II BMR	High yielding, high energy in a compact leafy plant.	35-50#
Silo Candy BMR	Energy dense, short season, one-cut forage.	35-50#
OPTimum II Forage Mix	Forage oat and forage pea blend for high yields and quality.	100-125# (65-80# nurse crop)
Banquet Forage Oats	Leafy forage oat, good heat tolerance and disease resistance.	100# (50-75# nurse crop)

Barenbrug Products

T-Raptor Rape	Extremely palatable fall and winter forage.	3-5# (2# in mix)
Barkant Turnips	High quality fall and winter grazing, soil conditioning.	3-5# (2# in mix)
Forage Feast Chicory	Pasture diversity, drought tolerance, minerals.	15# (2-3# in mix)
Baron Ky Bluegrass	High yield, tolerant of tight grazing, excellent winter-hardiness.	20# (5# in mix)
HDR Meadow Fescue	High Disease Resistance, tolerates very wet soils, very palatable.	30# 8-12# in mix)
BarOptima+E34	Improved heat & drought tolerance in a soft-leafed fescue.	25# (same with clover)
STF-43 Tall Fescue Blend	Late maturing combination great for hay.	20-25# for hay
Bariane Tall Fescue	Late maturing, great for hay or pasture.	20-25# for hay; 30# pasture
E^2-640 / $E^2$631	Hybrid alfalfa / grass mixtures, yellow jacket coated.	25# for hay
Milkway	Highly digestible blend of soft leaf tall fescue & meadow fescue.	30# (8-15# in mix)
HLR Orchardgrass	High Leaf Ratio, heads 4th week of May, high yields, palatable.	10-12# (4-6# in mix)
Hercules Annual Ryegrass	Fast establishing forage or cover crop.	40# forage; 20# cover
Green Spirit Italian Ryegrass	Fast establishing, no heads in seeding year.	40# forage; 20# cover
Barsprinter/BG-34 PRG	Extremely dense, persistent; pasture on 3%+ org. matter.	30# (10-25# mix)
Remington PRG	Extremely dense, tetraploid; grazing or mechanical harvest.	30# (10-25# mix))
Tenho Timothy	Rapid establishment, very leafy, persistent and winter-hardy.	10# (4-6# mix)
Freedom Red Clover	Less hairs on stem for faster drying, less dust, great for hay!	15# (4-8# mix, 4# over)
Alice/White Clover	Nitrogen fixing, pasture and cover in produce.	10# cover; 2-3# mix

Other Seed Products

Barley	Winter, **Thoroughbred**; Spring, **Robust** (when available).	100-20#
Buckwheat	**Mancan** or VNS, plant June for grain, cover crop or honey.	40-60#
Oats	**Armor, Burton, Corral**; **Banquet** and **Feast organic** forage oats.	100-20#
Spelt	**Champ, Oberkulmer, Maverick, Comet, Sungold**	110-50#
Wheat	**Sunburst, Malabar, Agripro**	90-120#
Austrian Winter Peas	Winter hardy, nitrogen-fixing forage or cover crop.	60# (40-50#, rye, oats)
Forage Peas	**Packer** & **MB4010,** nitrogen fixing forage and cover crop.	50# (30# mix)
Birdsfoot Trefoil	**Leo**, legume for poor ground.	12# (4-6# mix)
Organic Hairy Vetch	VNS & **Purple Bounty,** high protein, nitrogen-fixing cover crop.	30# (15-25# with rye)
Aroostook Rye / Fall Triticale	Very leafy, superior fall forages or cover.	100-120# (same, vetch)
Dessie's Summer Lovegrass	**(TEFF)** Summer annual that can be dry baled, cover crop.	5-6# (uncoated seed)
Reed Canary Grass	**Rival,** low alkaloid, wet areas, buffers.	20# (6-8# mix)

Fowler Seed Marketing
Rock Creek, OH 44084

888.249.SEED
www.fowlerseed.com