



Spring 2009 Forage Newsletter

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Dear Valued Customer,

We hope you are doing well in these tough economic times. Hopefully, things will turn around soon! I personally want to thank you for your hard work in growing forages that are ultimately used to feed the world. We have indeed made lots of progress. God has provided for us a wide variety of species to be used in our agricultural systems.

In the majority of our region, we are blessed with adequate moisture and relatively good conditions. We can grow and store good quality forages. We also have great opportunities for nutrient management that our competitors do not necessarily have. In these hard economic times and for that matter, at all times, it makes sense to maximize the forages in our rations. The utilization of highly digestible forages is the main focus of King's AgriSeeds.

Summer Annuals

Our Summer Annuals are both high yielding and highly digestible.

Gene 6 Brown Mid Rib (BMR) Sorghum sudans:

Best for grazing, baleage and haylage. This heat loving crop should be seeded after soils have warmed to 60°F in the morning and are predicted to stay warm.

Summer Dream – Our newest and now most popular gene 6 BMR sorghum sudan has lots of wide leaves packed on a shorter stalk. With this productive dwarf, the need to leave 4 to 6 inches of stubble behind is reduced to 3 to 4 inches. This hybrid is also ideal for grazing, as it does not get away from you and grazing it too short is less of a problem. For those wanting to thicken thinning alfalfa fields (Those that do not have any grass), Summer Dream is the hybrid of choice. Another advantage of Summer Dream is that because it has a higher leaf to stem ratio it is our easiest sorghum sudan to dry.

Summer Queen – Our most drought tolerant sorghum sudan. It has wide leaves and is photo-period sensitive which delays maturity allowing for a long harvest window. Fiber digestibility remains high even if the crop gets bigger than you wish. Summer Queen loves it hot and dry.

Summer Prince – Our best sorghum sudan for northern and/or heavy disease pressure areas such as low areas with less air flow. It is also more productive in cooler climates than both Dream and Queen.

If you are not familiar with growing and feeding our Gene 6 Sorghum sudan products, ask for our technical and management brochure!

Gene 6 BMR

Forage sorghum: Best for one direct cut, like corn silage in droughty areas that struggle to grow consistent profitable corn silage. Yields of 6 to 7 tons of dry matter (18 to 21 tons @ 67%) under drought are common. Total costs of growing Forage Sorghum is less than half that of corn and makes a great complement to corn silage in the ration. It can also be used for one large cut and wilt at flag leaf. Ask for our BMR Forage Sorghum Tech Sheet.

BMR6-8FS – This shorter season hybrid gets about 7 to 8 feet tall, dries in the field well and has good standability. For direct cut, we recommend 8FS for Central PA and further south.



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Forages for
Greater Profits**



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Spring 2009 Forage Newsletter Management Information Enclosed to Increase Profitability.

Continued from page 7

Triticale Plus – This is one of our most popular winter annual forage products that farmers, nutritionists and livestock love. It is a mixture of TriCal 815 and our Annual and Italian Ryegrasses. Its spring management is very similar to the Annual and Italian Ryegrasses. We prefer the two cut system described above, as the harvest windows are very large resulting in lots of highly digestible forages. However, if only one cut is desired, flag

leaf stage or a little sooner is the ideal timing. All the material in Triticale Plus will come to flag leaf at the same time (within a day or two). The disadvantage of the one cut system is that quality is slightly lower than the two cut system and that the weather may not cooperate causing quality to drop further. Note: As described under ryegrass section, the ryegrass must be killed before planting the next crop.

Parting thoughts

We hope that you enjoyed this information and can apply some of it to your operation. Some of the ideas may require some management and forage storage changes. Change initially may be difficult to accept. However, we have lots of confidence that when these ideas are put together in a plan, they will result in improving your farm profitability over the years, whether the economy is poor or strong. Please call your local dealer for assistance in putting a program together for your farm.

God Bless,

Tim Fritz and our entire staff.



(717) 687-6224
Toll Free 866-687-6224



Little Titan 112 –(Sold Out) A new dwarf hybrid forage sorgham that gets about 5 ft tall that is adapted to Maryland and further south. Little Titan 112 exhibits superior standability and has excellent quality.

Other Warm Season Annuals

Dry Hay options:

Corvallis Teff – A very small seeded summer annual that can be made into dry hay. It has very fine leaves and stems. This grass is very palatable and is making a mark in the horse hay market. Teff hay is also good for ruminants. Note: Although it is a fine leaved grass, Teff does take longer to dry than easy to dry cool season grasses such as orchardgrasses, bromes and timothy. See our Product Info Guide for management details.

Haymaker Sudangrass – A true dry stem sudangrass that has very good digestibility. Because it is a sudangrass, it is not recommended for horses. Haymaker can be dried for hay in three good drying days in most areas (Must be conditioned). Haymaker is an excellent source for dry digestible fiber. For those that feed straw in dairy diets, Haymaker is an alternative that not only provides effective fiber, but is also much more digestible. It can also be used for grazing, baleage and haylage.

For Grazing Only

Summer Feast – A great summer grazing product. This mix contains Wonderleaf millet and Pasja brassica. There is no risk of prussic acid problems. The brassica family does not make good stored forage due to its lack of fiber. Note: Cows should be slowly introduced to brassicas.

Summer Feast

Little Titan 112



Crop Rotation.

When used properly, crop rotation results in increased yields, better soil health, and fewer pests. Ultimately, profitability is improved. A good crop rotation is planned in advance and includes at least three different species. At this winter's forage seminar's we gave an example of a really productive six year forage rotation. For those that could not join us, here is the sample forage rotation. If you also grow grains, these crops can be incorporated as well

Example Rotation:

Year 1 - 3 – Legume/Grass mixture that is adapted to your area (*See your local dealer and/or our Product Info Guide for choices*)

Year 4 – Masters Choice Corn for silage

Year 4 late summer/early fall – Seed a winter annual such as Triticale Plus

Year 5 Spring – Harvest winter annuals

Year 5 Mid spring – Plant Summer Annual (*see article on Pg 1-2*)

Year 5 Mid Summer – Plant Everleaf Oats (*If available time, may skip or substitute with a winter annual*)

Year 6 – Masters Choice Corn for silage

To further illustrate this rotation on a 60 acre tract with six 10 acre fields (Ideal scenario). Each year there would be 30 acres of legume grass mix, 20 acres of corn silage and 10 acres of intensely managed annual grasses.

Perennial Forage (*Legume grass mixtures*)

Three 10 acre tracts will be in a legume grass mixture.

One field will be 1st year production. (*Year 1*)

One field will be 2nd year production (*Year 2*)

One field will be 3rd year production (*Year 3*)

Corn for Silage

Two 10 acre tracts

One field after legume grass mixture (*Year 4*)

One field after Oats or winter annual (*Year 6*)

Vegetative Grass Annual Forages

One 10 acre field that is double or triple cropped (*Year 5*)

Masters Choice Specialty Forage Corns:



Master Graze is a BMR forage corn with lots of tillers

Master Graze – An exciting new high tillering BMR corn that is an alternative to our BMR Sorghum sudans. MasterGraze is ideal for climates that are a little cool for Sorghum sudan. This is a one cut and wilt or grazing crop that is ready for harvest in 50 to 60 days. When planted in 15 inch rows at 40,000 plants per acre one can expect about 4 tons of dry matter (12 tons @ 67% moisture) of super quality forage. Harvest should occur just prior to tassel (Flag leaf or sooner) Note: A low residual herbicide program is recommended or plant in 30 inch rows and cultivate. Follow with the crop of your choice. Works well to set up rotation and cover crop possibilities.

MC 530 LBM – Ideal for grass finished beef, dairy heifers and other types of livestock where a low starch forage is desired. 530 LBM is a male sterile version of MC 530. It looks just like 530, but the pollen is sterile so no grain is produced. Because it will not set grain, the sugar levels will be extremely high in the stalks and leaves. 530 LBM can be grazed or direct chopped for grainless corn silage. (Note: Pollen from other nearby corn when 530 LBM is silking will allow some grain to be formed.)

Masters Choice Conventional Corn.

Tired of paying trait fees? With good crop rotation management and timely plantings, quite often traits are not needed. Masters Choice is a leader in breeding conventional corn. Many MC hybrids are less susceptible to corn borer damage due to excellent stalk density. We have excellent hybrids available that are not only great performers in the field, but also have excellent nutritional qualities.

Our hybrids have excellent starch digestibility when used for both grain and silage. **Better starch digestibility means that supplemental grains should be reduced. This lowers your feed cost while maintaining milk production.** Quite often our corn has 10 to 15% more starch availability. When used as silage, our hybrids ferment very quickly and are ready to feed at full value much quicker than most corn. The silage has a sweet smell that cows love.

Forage Yield Projections on 60 acre land base.

(Based on Productive Soils, adjust accordingly)

Corn Silage (Dense Energy Forage)

8 tons of Dry Matter (24 tons @ 67% moisture) times 20 acres
160 Tons of Dry Matter (480 tons @ 67% moisture)

Legume Grass Mixture (Protein & vegetative grass Fiber Energy)

6 tons of Dry Matter (18 tons @ 67% moisture) times 30 acres
180 Tons of Dry Matter (540 tons @ 67% moisture)

Annual Grass Forage (Fiber Energy and Protein)

10 tons of Dry Matter (30 tons @ 67% moisture times 10 acres
100 Tons of Dry Matter (300 tons @ 67% moisture)

Forage needs for a 60 cow dairy on 60 acres

<u>52 Milk Cows (80lbs)</u>	<u>14 large Heifers</u>
332 tons corn silage	38 tons corn silage
285 tons haylage	70 tons annuals or haylage can be mixed
142 tons annuals	5 tons hay
38 tons dry hay	

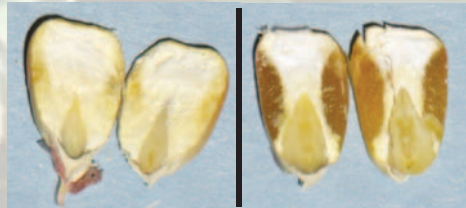
<u>8 Dry Cows</u>	<u>14 Small Heifers</u>
31 tons corn silage	2 ton hay
16 tons annuals	7-9 ton annuals
6 tons dry hay	no corn silage or very little.

Total Forage Needs for all livestock

Total Corn Silage	407 tons
Total Haylage	285-355 tons (depending large heifer ration)
Total Annuals	166-236 tons (depending large heifer ration)
Dry Hay	51 tons of dry hay (123 ton wet hay equivalent)

Note: Heifer replacements based on a 20% cull rate which is very achievable when feeding a high forage ration. Using the above rotation and yield assumptions, there would be surplus forage to sell to purchase grains. An alternative would be to alter the rotation to grow some grain instead of forage.

Masters Choice



Competition

Maximizing Forage Production Per Acre

Triple Crop Program - Real Data from a Real Farm

Profitability is dependant on yield and quality times the difference between cost of production and value of product (whether fed through livestock or sold). Soil health and nutrient balances are also critical items that must be considered. The details below are from an actual farm in Lancaster County that used the "year 5" scenario in crop rotation article (*page 2*). Weights were taken off the entire four acre field with every harvest and yields were corrected to moisture content. This field yielded 14 tons of dry

matter that had excellent forage quality. Fourteen tons of dry matter is equal to over 40 tons at 65% moisture. These are real numbers from a real farm. Please take these ideas and try to adapt them to your farm to help increase your profitability. This information was compiled by Dave Wilson.

This farm has been in continuous no-till since 2000. During the growing season of 2008, he harvested a total of 5 cuttings from this triple-crop rotation. Triticale Plus (2 cuttings), Sorghum Sudangrass hybrid (2 cuttings), and forage oats (1 cutting). Included are the details of the forages he used.

2008 Yield Data from 4 acre field.

Planting date	Crop & (cutting date)	Tons/Acre		
		Dry Matter	at 65% moisture	at 11% moisture
Triticale Plus -first week of Oct. 07	1st Cutting Triticale Plus (4-21-08)	2.85	8.13	3.2
	2nd Cutting Triticale Plus (5-24-08)	3.15	9	3.5
Sorghum Sudangrass 6-13-08	1st Cutting Sorghum Sudan (7-15-08)	2.62	7.47	2.9
	2nd Cutting Sorghum Sudan (8-17-08)	2.58	7.38	2.9
Forage Oats 8-14-08	Forage oats (10-18-08)	2.89	8.17	3.2
	Total Tons/Acre →	14.09	40.15	15.7

Triticale Plus Mixture: Triticale, Zorro Italian, Ryegrass & Marshall Annual Ryegrass,
BMR Sorghum-Sudangrass hybrid: Summer Queen / **Forage Oats:** Everleaf oats

Fertility

This farmer noted that he does use a lot of Roundup, but does not use Round-up Ready trait tech corn. In his no-till corn he has good weed control by using a solid pre-emergence herbicide program.

No-Till & Soil Quality Comments

By using this no-till system, he has found that by double and triple cropping in the no-till rotation, he continually has a rotting root system to feed organic matter to his soil. The field where double and triple cropping was used is soft to the touch, in contrast to another small field where he did not double crop, which felt like cement in the spring.

Crop	Manure & Fertilizer application
Fall 2007 - Corn Silage cut	
	Heavy application of manure applied after corn silage came off before seeding of Triticale Plus.
No-till planted Triticale Plus	Light application of manure over winter on Triticale Plus.
	200 lbs/A Ammonium Sulfate applied before first green up in spring on Triticale Plus.
1st Cutting Triticale Plus	
	250 lbs/A Ammonium Sulfate applied after 1st cutting of Triticale Plus.
2nd Cutting Triticale Plus	
	Manure applied after 2nd cutting of Triticale Plus.
No-till planted Summer Dream Sorghum-Sudangrass	
1st Cutting Sorghum-Sudangrass	
	250 lbs/A Ammonium Sulfate applied after 1st cutting of Sorghum Sudangrass.
2nd Cutting Sorghum-Sudangrass	
	Manure applied after 2nd cutting of Sorghum Sudangrass.
No-till planted Everleaf Oats	
Oats cut	
	After the oats were cut, then bedded pack manure was applied for the next corn silage crop which will be planted in 2009.

Economics

At \$744.00 per acre it initially appears to be quite a bit of money spent per acre for seed, fertilizer and Roundup. The input cost was high (not including fixed costs), but it's important to keep in mind the large amount of material that was harvested (14 ton of Dry Matter). When calculated in cost per ton it comes out to \$52.78/Ton of Dry Matter (\$18.50 @ 65% moisture). This system is very profitable!

Direct Cost per Acre	
Seed	\$ 149.50
Nitrogen Fertilizer	\$ 104.00
Glyphosate Herbicide	\$ 32.50
No-till Drill	\$ 45
Cutting & Raking	\$ 100
Bale & Wrap	\$ 312.75
Total →	\$ 743.75

As a comparison if he would not have triple cropped this field, he would be growing alfalfa hay instead and that would yield approximately 8 Ton/Acre for the year.

Comparison: Triple crop forage vs. Alfalfa hay	
	Ton/Acre
Triple crop	15.7
Alfalfa Hay	8.0
Difference →	7.7

Forage Nutrition

Ruminants were designed to consume forages. Grazing, when possible, is the cheapest and usually the highest quality forage. When grazing is not practical, forages should be fed at the highest level possible without losing productivity. On most farms, energy is the most limiting factor, not protein (lactating livestock only need about 16% protein in their total diet).

The classic North American dairy diet since the 1950's has been built upon corn silage providing energy and alfalfa providing protein. Achieving high milk production with this diet requires a fair amount of supplemental energy because the fiber energy in both corn silage and alfalfa is fairly low. Grains and forages that contain grain are low in protein and minerals. Hence, there is a need for more concentrated protein sources and minerals.

Prior to the 1950's, where did the energy come from for ruminants? Most dairies based their rations on vegetative grasses, legumes and other species

and high milk production was indeed possible on well managed dairies. (Note: Cow genetics have improved greatly over the decades). The vegetative grasses (harvested as either pasture or stored feed) are loaded with digestible fiber that provides fiber energy. This fiber energy has been ignored by the dairy industry for decades and King's AgriSeeds highly recommends the addition of vegetative grasses for improved crop rotations, soil health, and better forage rations that are not only more profitable, but also healthier for the livestock.

We are not by any means suggesting we just turn back the clock. Much has changed in the dairy and livestock industries. Corn silage is a very dependable consistent crop and when growing Masters Choice, you get better starch digestibility along with higher sugars and good fiber digestibility. Alfalfa is also a very dependable high yielding crop as well. What we are suggesting is incorporating modern highly digestible grass forages into your existing program to reduce feed costs, increase yields and improve your bottom line.

Decrease Feed Costs through Better Forage Nutrition

Dense Energy: For silage, Master Choice corn has softer kernels and more digestible nutrition. Less corn in manure and no need to wait 3 to 4 months for silage to have excellent feeding qualities. For grain, kernels grind easy and make a white floury meal with rapid starch availability.

Fiber Energy: *This is the missing ingredient on many dairies.* Include vegetative grasses in your crop rotation and rations to allow more forage to be fed. King's specializes in highly digestible annual and perennial grasses. Ask your local dealer for which products best fit your farms needs and goals.

Protein: Legumes such as our KingFisher alfalfas and our clovers are an excellent source of protein and when put into a crop rotation, they make free nitrogen reducing fertility cost. Vegetative grasses are also a very good source of protein. When managed properly, they are usually in the mid to high teens.

Ration Examples Using King's Products

The rations below were balanced using CPM Dairy software which is one of the most advanced software programs used to formulate dairy rations. These are only used to give you some ideas of how our products can be part of a forage rotation fit into the dairy diet. We could have done many more. The numbers used are what we typically find in the field. Your forage quality may be higher or lower and the ration should be balanced on each and every farm. Adjustments should be made when changing forages and if forage shortfalls or surpluses occur.

You will find differences in the costs of the rations that make serious impacts on profitability. *The lower ration costs (and improved cow health) together with better crop productivity and farm profitability will be improved even more.*

These sample rations are ranked in order of nutritional preference by our consulting nutritionist, Victor Lutz, in consultation with Dr. Charles Sniffen.

Ration 1

Masters Choice Corn Silage, Alfalfa Grass Mixture, Triticale & Hay							
	CP	ADF	NDF	NDFD24	Kd Rate	DM (lbs)	AF (lbs)
MC Corn Silage	7.4	25.7	42	53	5.1	11.5	35
Haymaster	21.5	32	49	59	8.0	12.0	30
TriCal 815	14	39	59	59	4.0	5.7	15
Grass Hay	16	45	55	63	6	3.5	4
Concentrates						<u>16.5</u>	<u>18.5</u>
Total						49.2	102.5

Ration stats:

1350 pound cows,	120 DIM, 80 lb Milk, 4.0 Fat, 3.4 Protein
% Forage	66.6
% CP	17.3
Nel (MCal/lb)	.77
% Starch	23.8
% Sugar	5.18
Cost (\$/day)	4.84

Ration 2

Masters Choice Corn Silage, Alfalfa Grass Mixture, BMR Sorghum sudan, & Hay							
	CP	ADF	NDF	NDFD24	Kd Rate	DM (lbs)	AF (lbs)
MC Corn Silage	7.4	25.7	42	53	5.1	9.9	30
Haymaster	21.5	32	49	59	8.0	8.8	22
BMR SSX	15	36	60	56	5.4	8.0	20
Grass Hay	16	45	55	63	6	3.5	4
Concentrates						<u>15.4</u>	<u>20.6</u>
Total						48.6	96.6

Ration stats:

1350 pound cows,	120 DIM, 80 lb Milk, 4.0 Fat, 3.4 Protein
% Forage	62.2
% CP	18.5
Nel (MCal/lb)	.79
% Starch	23.8
% Sugar	5.6
Cost (\$/day)	4.76

Harvesting Winter Annuals for Baleage and Haylage.

As with most forages, we highly recommend wide swath management followed by raking or merging. Wide swathing allows for quicker dry down and sugars to actually increase in the forage. This results in much higher forage quality compared to narrow swaths.

Small Grains

Rye & TriCal 815 – For most winter annual grains including Rye and TriCal 815 Triticale, the best compromise between forage

quality and yield is typically considered to be flag leaf. This is when the last leaf is fully emerged from the stem. This is before the boot stage (when the head is ready to emerge from the stem).

If a high starch forage is desired, TriCal 815, can be harvested at soft dough stage. At this stage, fiber digestibility and protein will be much lower, but yield will be higher. This high starch lower fiber quality forage may be desired if the bulk of the ration is super

quality forage that is both highly digestible and too high in protein.

Oberkulmer Spelt – If you are growing Oberkulmer Spelt for forage, we prefer harvest to occur around alfalfa harvest. We recommend an earlier harvest, because of its very late heading. Flag leaf stage usually occurs after a warm spell and the heat may drive up lignin and drop fiber digestibility. Yields of spelt for forage are very high around alfalfa harvest while still having

Ration Examples Using King's Products *(Continued)*

Ration 3

Masters Choice Corn Silage, Alfalfa & Hay

	CP	ADF	NDF	NDFD24	Kd Rate	DM (lbs)	AF(lbs)
MC Corn Silage	7.4	25.7	42	53	5.1	16.5	50.0
Alfalfa	20	36	40	27	3.9	12.8	36.5
Grass Hay	16	45	55	63	6	3.5	4
Concentrates						15.3	17.2
Total						48.1	107.7

Ration stats:

1350 pound cows, 120 DIM, 80 lb Milk, 4.0 Fat, 3.4 Protein

% Forage	68.1
% CP	18.3
Nel (MCal/lb)	.79
% Starch	23.5
% Sugar	4.27
Cost (\$/day)	5.0

Ration 4

Typical Corn Silage Alfalfa & Hay

	CP	ADF	NDF	NDFD24	Kd Rate	DM (lbs)	AF(lbs)
Ave Corn Silage	7.5	30	49	48	3.3	15.0	50.0
Alfalfa	20	36	40	27	3.9	12.8	36.5
Grass Hay	16	45	55	63	6	3.5	4
Concentrates						17.8	20.0
Total						49.1	110.5

Ration stats:

1350 pound cows, 120 DIM, 80 lb Milk, 4.0 Fat, 3.4 Prot

% Forage	63.7
% CP	18.44
Nel (MCal/lb)	.77
% Starch	24.05
% Sugar	4.08
Cost (\$/day)	5.37

Watch MUN levels

Cost Assumptions

Haymaster \$65 per ton @ 60% Moisture (As Fed)
\$163 per ton DM (Dry Matter)

Corn Silage \$45 per ton @ 67% Moisture
\$136 per ton DM

BMR Sorghum sudan \$40 per ton @ 60% Moisture
\$100 per ton DM

Triticale \$35 @ 62% Moisture
\$92 per ton DM

Alfalfa \$65 per ton @ 65% Moisture
\$186 per Ton DM

great quality. If very high yield is the main goal and lower quality is acceptable, harvest at flag leaf to boot stage. Note: The heading date is late and a delayed harvest will restrict following crop options. Our warm season annuals are the best forage option following spelt.

Annual & Italian Ryegrasses

Whether you are using Marshall, Zorro or Green Spirit harvest times are very similar. We highly recommend a two cut system or grazing to take full advantage of these crops. Our cutting recommendation is to harvest when the crop reaches 15

to 20" (typically just before most corn planting begins) with the realization that if weather is not favorable to hold off until a good harvest window opens up. As long as the crop does not go into head, forage quality will be superb. Even if a few heads emerge, quality will still be high. When harvesting, leave 4" of stubble in the field to allow rapid regrowth for the next cutting and make sure fertility is available. We usually recommend about 50 to 75 lbs of nitrogen to be applied after cutting. The 2nd cutting is usually ready to harvest in three weeks. After the 2nd cut,

we recommend in most areas that the crop be allowed to regrow to 6 to 8" and then sprayed off with glyphosate. Do not skimp on rates, a 2X normal rate is best. It is critical that ryegrass be properly killed to allow the next crop to thrive. We highly recommend our warm season annual crops to follow the 2nd harvest of ryegrass (*see front page 1 & 2 for more info*)

Note: In climates that are ideal for cool season grasses (northwest PA, parts of NY and New England), these crops may be productive for a much longer time.

Continued on page 8