This marks the 20\textsuperscript{th} consecutive year we have done a Forage's at KCA Program and I find it hard to believe the past 20 years have passed so quickly. The opportunities for forages in Kentucky were indeed great twenty years ago; however, they are much greater now than when we started this Conference.

\textbf{CHANGE}

The only real constant in life is “change” and “change” is often more rapid than this conservative country boy can handle. Just think about the changes in medicine, lifestyles, culture, etc. and, of course, “technology”. I began my career with an overhead projector and never dreamed I would have cell phone, I-Pad, I-Phone6, I-Watch, computer, PowerPoint, website, e-mail, facebook, twitter and google. In fact, I grew up in a home, oldest of ten children, no telephone, without electricity, running water and indoor plumbing. Last year I flew over 50,000 miles and was in seven countries but remember as a child riding a horse to town and later we got a pickup so I rode in the back, rain or shine. I went in the military at 17 just out of high school and spent 30 months in Germany. While there I never made or received one phone call and only communicated with family and friends by letter. Last year I was in Germany and used my cell phone to call home/office each day and exchanged e-mail from my laptop in the hotel room at night.

In 2011, we reached a milestone in the World when the one billionth person was born. Population is expected to reach 10 billion by 2050. In addition, people are living longer with an increase in average life expectancy in the U.S. to 78.37 years. More people, living longer BUT eating less of the products we produce. Per capita consumption of beef in the U.S. reached a record low of 59 pounds last year. This is the lowest since the database started in 1955. Chicken on a per capita basis has shown dramatic increases passing pork in the mid-80’s and beef in the early 1990’s. In addition, we have fewer farms today than ever. Less than 1\% of our population is currently considered fulltime and only 2\% live on farms. We have seen a steady decline in the number of beef and dairy farms for over twenty years. Fewer farmers on fewer farms with fewer cows are still producing an abundant supply of wholesome meat, milk
and dairy products. Larger farms and more production per cow have helped to compensate for the reduced farm-farmer-animal base.

CHALLENGES

Kentucky farmers face more challenges today than ever. Time, space and knowledge does not permit me to address all but a few examples include rising production cost, animal rights-animal welfare, environmental issues, food-feed-fuel, health issues, governmental regulations, competition and weather. I remember my first car (1950 V-8 flathead Ford with overdrive) and could go to the gas station in McHenry, Kentucky and buy a gallon of gas for 23 cents and Mr. Phelps would pump the gas, wash my windshield, check the oil and air up any low tires. I never dreamed I would see gasoline go to $5.00/gal as I saw in California in 2012. Likewise, when I gathered the down row of corn with a wagon pulled by horses I never dreamed I would see corn reach $8.00, and soybeans $17.00. These factors and others have resulted in average U.S. farmland increasing drastically. In 2011, U.S. average farmland increased 6.8%, in the Midwest 16% and in Iowa 24%. USDA and University budgets have been reduced. In 2011, the USDA announced the closing of 259 facilities in the U.S. We have seen a 60% loss in forage-livestock researchers, 40% drop in forage-livestock teachers and the loss of extension specialist is approaching 50%.

OPPORTUNITIES

Forages in general and in particular grazing has played a critical role historically, interest and opportunities for grazing are the highest I have seen in my career; however, the most important role for forages and indeed grazing is the Future. We CAN produce quality animal products with quality forages. We will not have the luxury of substituting cheap energy and proteins for low quality forages. The good news is we don’t have too. Graziers today are recognizing the value of forage quality, factors affecting quality and management required to achieve an acceptable quality to meet desired animal performance results.

In 1989, Drs. Don Ball, Carl Hoveland and I put together ten key factors that were the foundation of the book “Southern Forages”. These concepts can play a critical role toward the ultimate goal of producing “Quality Forages” for environmental-sustainable-profitable forage-livestock programs.
KEYS TO FORAGE PROFITABILITY

Know Forage Options and Animal Nutritional Needs. Forages vary as to adaptation, growth, distribution, quality, yield, persistence, and potential uses. Also, various types and classes of animals have different nutritional needs. Good planting decisions require knowing forage options for the land resources and nutritional needs of the animals.

Establishment is Critical. Good forage production requires an adequate stand of plants. Mistakes during establishment often have long-term consequences. Use of high quality seed of proven varieties, timely planting, and attention to detail lead to establishment success.

Soil Test, then Lime and Fertilize as Needed. This practice, more than any other, affects the level and economic efficiency of forage production. Fertilizing and liming as needed help ensure good yields, improve forage quality, lengthen stand life, and reduce weed problems.

Use Legumes Whenever Feasible. Legumes offer important advantages including improved forage quality and biological nitrogen fixation, whether grown alone or with grasses. Every producer should regularly consider on a field-by-field basis whether the introduction of legumes would be beneficial and feasible. Once legumes have been established, proper management optimizes benefits.

Emphasize Forage Quality. High animal gains, milk production, and reproductive efficiency require adequate nutrition. Producing high quality forage requires knowing the factors that affect forage quality and managing accordingly. Matching forage quality to animal nutritional needs greatly increases efficiency.

Prevent or Minimize Pests and Plant-Related Disorders. Diseases, insects, nematodes, and weeds are thieves that lower yields, reduce forage quality and stand persistence, and/or steal water, nutrients, light, and space from forage plants. Variety selection, cultural practices, scouting, use of pesticides, and other management techniques can minimize pest problems. Knowledge of potential animal disorders caused by plants can reduce or avoid losses.

Strive to Improve Pasture Utilization. The quantity and quality of pasture growth vary over time. Periodic adjustments in stocking rate or use of cross fencing to vary the type or amount of available forage can greatly affect animal performance and pasture species composition. Knowing the advantages and disadvantages of different grazing methods allows use of various approaches as needed to reach objectives. Matching stocking rates with forage production is also extremely important.

Minimize Stored Feed Requirements. Stored feed is one of the most expensive aspects of animal production, so lowering requirements reduces costs. Extending the grazing season with use of both cool season and warm season forages, stockpiling
forage, and grazing crop residues are examples of ways stored feed needs can be reduced.

**Reduce Storage and Feeding Losses.** Wasting hay, silage, or other stored feed is costly! On many farms the average storage loss for round bales of hay stored outside exceeds 30%, and feeding losses can easily be as high or higher. Minimizing waste with good management, forage testing, and ration formulation enhances feeding efficiency, animal performance, and profits.

**Results Require Investments.** In human endeavors, results are usually highly correlated with investments in terms of thought, time, effort, and a certain amount of money. In particular, the best and most profitable forage programs have had the most thought put into them. Top producers strive to continue to improve their operations.

**REFERENCES**
