

Beef Cattle Research Update

United States Department of Agriculture, University of Arkansas, and County Governments Cooperating

2008 Farm Bill Amendments to and Status of Mandatory Country-of-Origin Labeling

Mark Dopp, American Meat Institute

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The presumably soon-to-be-enacted 2008 Farm Bill includes several provisions that amend the mandatory country-of-origin labeling (COOL) law originally enacted in 2002. The amendments provide more structure to the statutory labeling scheme and presumably will allow some labeling flexibility to packers and the rest of the distribution chain.

Country-of-origin labeling is applicable only to certain meat products sold at retail.

COOL is a retail labeling law that requires retailers to provide origin information regarding “covered commodities,” which include certain meat products. Because mandatory COOL is limited to retail sales, products sold at food service establishments are exempt. Thus, meat products sold, for example, at restaurants or other food service institutions need not bear COOL.

For meat, a “covered commodity” includes “muscle cuts” of beef, lamb, chicken, goat and pork, as well as ground beef, ground lamb, ground chicken, ground goat and ground pork. Ground beef likely will be defined using the Food Safety and Inspection Service’s standard of identity for ground beef. In that regard, ground beef will be “chopped fresh and/or frozen beef with or without seasoning and without the addition of beef fat as such, and containing no more than 30 percent fat, and containing no added water, phosphates, binders, or extenders.” Other ground products do not have comparable standards of

identity established by FSIS and likely will be defined as comminuted [species] of skeletal origin that is produced in conformance with the applicable FSIS labeling guidelines.

The law exempts from COOL a product that otherwise would be subject to labeling if that product “is an ingredient in a processed food item.”

Although the law does not define “processed food item,” the rule will define that term.

The Farm Bill establishes four categories of origin.

Beef, lamb, pork, goat and chicken products that are muscle cuts and covered commodities fall into one of four categories established by the new law:

1. Product of the United States
2. Multiple countries-of-origin
3. Imported for immediate slaughter
4. Covered commodity that is foreign country-of-origin

The eligibility of a product to bear labeling identifying it as a “product of the United States” did not change with the Farm Bill amendments. Specifically, a meat product may be designated as “having a United States country of origin” only if it is “exclusively from an animal that is exclusively born, raised and slaughtered in the United States.” Recognizing that some livestock today may not have records associated with them such that their origin cannot be determined, the new law also “grandfathers” in as American an animal that was in the United States on or before July 15,

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2008, and remained in the United States thereafter until slaughter. Meat derived from such livestock is deemed to be a product of the United States, regardless of heritage. Animals that enter the U.S. after that date will not enjoy the benefits of this provision, and the supplier of the covered commodity will have an obligation to ascertain the origin of the animal that yielded the covered commodity.

The multiple countries-of-origin category applies to a wide array of livestock, such as cattle that are born in Mexico, spend part of their lives there as well as in the United States, and then are slaughtered in the United States. In short, the multiple countries-of-origin category captures covered commodities from animals with some affiliation with more than one country but which are not from animals that are imported for immediate slaughter.

The imported for direct slaughter category captures livestock that are brought into the United States and, in effect, go directly to the slaughterhouse for processing.

The last category covers foreign origin products and captures covered commodities from an animal for which no production steps (born, raised or slaughtered) occur in the United States.

There is some flexibility regarding labeling covered commodities in the four categories.

Only covered commodities derived from animals exclusively born, raised and slaughtered in the U.S. can bear labeling identifying the product to be a “product of the U.S.” Conversely, a product from an animal that is not born, raised or slaughtered in the United States will bear labeling identifying a foreign country as its country of origin. Thus, for example, beef from cattle born, raised and slaughtered in Canada would bear labeling that the beef is a “product of Canada.”

The labels attendant to covered commodities derived from animals with multiple countries-of-origin are more complex. As a general rule, meat from animals slaughtered in a country other than the United States likely will be able to be labeled as a product of the country of slaughter. Thus, for example, even if a steer is born or raised in the United States, if it is slaughtered in Canada, the covered commodity could be labeled as a “product of Canada.” Alternatively, in that circumstance, the label could read “product of Canada; from cattle born and raised in the U.S.”

Covered commodities derived from animals that are slaughtered in the United States but with multiple countries-of-origin will be deemed to be a product of the U.S., but the labeling will require a qualifier. Thus, if a steer is slaughtered in the U.S. and born and/or raised in the United States, Mexico or Canada, the label could read “product of the U.S.; from cattle from

the U.S., Mexico or Canada.” Such a label is different from the label for livestock exclusively born, raised and slaughtered in the U.S. It recognizes, however, that although the production steps of the animal’s life involve more than one country, the covered commodity, either the muscle cut (e.g., ribeye steak) or the ground beef, was produced in the U.S., while still providing information as to countries-of-origin of the animal.

Labeling of covered commodities derived from livestock imported for immediate slaughter in a U.S. plant will be different from labeling applicable for products from livestock with multiple countries-of-origin. The rule is likely to identify the commodity from such livestock as a product of the United States, because the steak or ground product is produced in the U.S., while also identifying in the labeling the country from which the animal was imported. Thus, for example, cattle imported from Canada for immediate slaughter would yield a covered commodity that would be labeled as a “product of the U.S.; from cattle from Canada.”

Marking and notification provisions may need greater flexibility.

Another issue unclear from the law is whether AMS will allow the origin information to be on the package or panels other than the principal display panel. Given that origin information does not have to be provided on the package, there is a sound argument that providing it on the information panel or elsewhere on the package, e.g., next to safe handling instructions, should be permitted.

COOL imposes recordkeeping requirements on packers and processors.

The law and rule impose recordkeeping requirements on packers and processors and anyone else who supplies a covered commodity to a retailer. The law also now specifies that “records maintained in the normal conduct of the business” can serve as verification of the country-of-origin of a covered commodity. Those records may include animal health papers, import or customs documents, as well as producer affidavits.

A significant amendment to the law is its reference to producer affidavits as a record that can provide verification as to the origin of a covered commodity. AMS has previously taken the position that an affidavit must be based on firsthand knowledge of the affiant to be deemed acceptable. Whether that more stringent approach will prevail or a more workable standard based on the collection of information that may be available to the affiant, e.g., brands, eartags, health records, is still uncertain. However, the latter approach would be more consistent with the standard that AMS will impose on intermediary suppliers.

Rotational Grazing on Rangelands: Reconciliation of Perception and Experimental Evidence

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Abstract

In spite of overwhelming experimental evidence to the contrary, rotational grazing continues to be promoted and implemented as the only viable grazing strategy. The goals of this synthesis are to 1) reevaluate the complexity, underlying assumptions and ecological processes of grazed ecosystems, 2) summarize plant and animal production responses to rotational and continuous grazing, 3) characterize the prevailing perceptions influencing the assessment of rotational and continuous grazing and 4) attempt to direct the profession toward a reconciliation of perceptions advocating support for rotational grazing systems with that of the experimental evidence. The ecological relationships of grazing systems have been reasonably well resolved, at the scales investigated, and a continuation of costly grazing experiments adhering to conventional research protocols will yield little additional information. Plant production was equal or greater in continuous compared to rotational grazing in 87% (20 of 23) of the experiments. Similarly, animal production per head and per area were equal or greater in continuous compared to rotational grazing in 92% (35 of 38) and 84% (27 of 32) of the experiments, respectively. These experimental data demonstrate that a set of potentially effective grazing strategies exists, none of which has unique properties that sets one apart from the other in terms of ecological effectiveness. The performance of rangeland grazing strategies is similarly constrained by several ecological variables, establishing that differences among them are dependent on the effectiveness of management models rather than the occurrence of unique ecological phenomena. Continued advocacy for rotational grazing as a superior strategy of grazing on rangelands is founded on perception and anecdotal interpretations rather than an objective assessment of the vast experimental evidence. We recommend that these evidence-based conclusions be explicitly incorporated into management and policy decisions addressing this predominant land use on rangelands.

Note: This article addresses rotational and continuous grazing on native rangelands. Listed below are a number of points addressed in the article.

- The preponderance of evidence generated from grazing experiments over the past 60 years has consistently indicated that rotational grazing is not superior to continuous grazing on rangelands.
- Yet, in spite of clear and consistent experimental evidence demonstrating that rotational grazing and continuous grazing have similar effectiveness on rangelands, rotational grazing continues to be

promoted and implemented as a superior grazing system.

- Consider the wide range of ecological variation associated with rainfall regime (i.e., amount, seasonality and intra- and interannual variability), vegetation structure, composition, productivity, prior land use and livestock characteristics (i.e., breeds, prior conditioning, care and handling). This tremendous ecological variability is paralleled by variability associated with the commitment, ability, goals (i.e., production vs. conservation) and opportunities (i.e., land ownership, alternative revenue sources) of managers operating these systems. Managerial variability poses a unique problem because, unlike ecological variability, it is seldom recognized and documented, which makes it especially difficult to disentangle from the ecological component of grazing systems. In spite of this tremendous variability, stocking rate has emerged as the most consistent management variable influencing both plant and animal responses to grazing.
- To emphasize the importance of management as a confounding variable, consider that a well-managed rotational system will very likely achieve desired production goals more effectively than poorly managed continuous grazing. In other words, the reverse is also true – that well-managed continuous grazing would be more effective than poorly managed rotational grazing.
- It has often been suggested, but not documented, that intensive grazing systems require more sophisticated management than do more simple systems. This intuitively leads us to conclude that management commitment and ability are the most pivotal components of grazing system effectiveness and that grazing systems do not possess unique properties that enable them to compensate for ineffective management (i.e., grazing systems do not provide a “silver bullet” to ensure attainment of desired goals).

Unified Vegetation Responses to Grazing

Several unifying principles of vegetation response to grazing have emerged from the rangeland literature during the past century. These principles constitute well-recognized and widely applied management rules of thumb that are founded on well-substantiated ecological mechanisms. These principles include the following:

1. Chronic, intensive grazing is detrimental to plant growth and survival;

2. Primary productivity can be increased by lenient grazing and decreased by severe grazing;
3. Forage quality is often improved by frequent grazing; and
4. Species composition of plant communities can be modified in response to the frequency, intensity and seasonality of grazing.

Result of Experimental Grazing Research

- Comparisons of published reports among grazing systems must be done with caution because stocking rates were often confounded by the unwarranted recommendation that rotational grazing could sustainably increase stocking rate by 1.5-2 times compared to continuous grazing.
- Eighty-nine percent of the experiments reported no differences for plant production/standing crop between rotational and continuous grazing with similar stocking rates. When stocking rate was less for continuous than rotational grazing, 75% of the experiments reported either no differences or greater plant production for continuous grazing. Across all stocking rates, 83% of the experiments reported no differences for plant production between rotational and continuous grazing, 13% reported greater plant production for rotational compared to continuous grazing and one experiment reported greater production for continuous grazing.
- Fifty-seven percent of the experiments reported no differences for animal production per head between rotational and continuous grazing with similar stocking rates, and 36% reported greater per head production for continuous grazing. When stocking rate was less for continuous than rotational grazing, 90% of the experiments reported either similar or greater per head animal production for continuous grazing. Across all stocking rates, 50% of the experiments reported no differences for animal production per head between rotational and continuous grazing, 8% reported greater production for rotational grazing and 42% reported greater production for continuous grazing.
- These experimental results conclusively demonstrate that rotational grazing is not superior to continuous grazing across numerous rangeland ecosystems, and they are consistent with those of previous reviews. These results further corroborate the long-standing conclusions that stocking rate and weather variation account for the majority of variability associated with plant and animal production on rangelands.

Presumed Benefits of Rotational Grazing Were Overextended

- For example, experimental evidence indicates that defoliation is not always controlled more effectively

in rotational grazing systems than in continuous grazing and that forage quality and quantity are not consistently and substantially increased in intensive systems compared to continuous grazing.

- This further substantiates the notion that rotational grazing may have been introduced with heightened and unrealistic expectations that were not founded on evidence-based recommendations.

Ecological Constraints Occur in All Grazed Ecosystems

- A fundamental ecological explanation for why the unifying principles of vegetation responses to grazing do not support greater effectiveness of rotational grazing is that grazing management must optimize several competing ecological processes to attain production goals sustainably.
- Grazing management must optimize both residual leaf area to maintain plant productivity and forage utilization to yield sufficient animal nutrition and production on an area basis.
- Low stocking rates or grazing pressures promote plant production by maintaining high leaf area per unit land area.
- Higher stocking rates reduce plant production by decreasing leaf area per unit ground area, but both the percentage and absolute amount of plant production harvested by livestock increases. Extremely high stocking rates are associated with very high forage utilization, but plant production is reduced so severely that even these high rates of utilization do not provide sufficient forage and animal production declines.
- Stocking rate must be adjusted, regardless of grazing system, to maintain sufficient forage to carry livestock through periods of minimal plant growth.

Context of Experimental Research

- Grazing research has not adequately assessed the effects of grazing at large scales, which often demonstrates the occurrence of patch- and area-specific grazing. Smaller experimental pastures usually result in more uniform distribution of grazing pressure, which may not appropriately describe how domestic grazing animals utilize large landscapes or, in the case of native ungulates, how they migrate regionally.
- Research experiments that operate for short periods following treatment imposition may largely capture the period of system adaptation and underestimate the long-term potential of grazing systems.

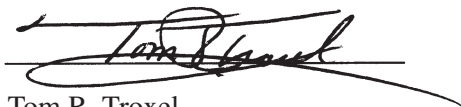
Implications and Perceptions Reconciliation

The rangeland profession has become mired in confusion, misinterpretation and uncertainty with respect to the evaluation of grazing systems and the development of grazing recommendations and policy decisions. We contend that this has occurred because recommendations have traditionally been based on perception, personal experience and anecdotal interpretations of management practices rather than evidence-based assessments of ecosystem responses, which is a common phenomenon in ecosystem management. This has seriously impeded the development of more robust, consistent and unified grazing management recommendations and policy decisions to govern this predominant land use on rangelands.

This synthesis demonstrates that continued advocacy for rotational grazing as a superior system of

grazing is founded on perception and anecdotal interpretations rather than on the preponderance of experimental evidence. Rotational grazing as a means to increase vegetation and animal production has been subjected to as rigorous a testing regime as any hypothesis in the rangeland profession, and it has been found to convey few, if any, consistent benefits over continuous grazing.

The experimental evidence indicates that rotational grazing is a viable grazing strategy on rangelands, but the perception that it is superior to continuous grazing is not supported by the vast majority of experimental investigations. There is no consistent or overwhelming evidence demonstrating that rotational grazing simulates ecological processes to enhance plant and animal production compared to that of continuous grazing on rangelands.



Tom R. Troxel
Professor and Associate Department
Head - Animal Science

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