

Managing and Marketing Cull Cows

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Introduction

Culling cows to improve the herd is an important management practice. Cows are usually culled in late fall soon after calves are weaned. Many times little attention is given to the best method to market them.

Nationwide, income from cull cows makes up 15 to 20 percent of the beef cow-calf herd income, according to the National Animal Health Monitoring Service (NAHMS). Data from the Arkansas Beef Improvement Program (1993-1998) revealed that cull cows and bulls make up an average of 17.1 percent and 2.3 percent of gross income, respectively.

In Arkansas, 110,000 to 185,000 beef cows are culled each year. Cows are culled from the herd for a number of reasons. The NAHMS Beef '97 Study showed that, of the cows culled in 1996, 39.8 percent were culled because of old age or bad teeth. Approximately 25 percent were sold due to pregnancy status, and 18.5 percent were sold for economic reasons (drought, herd reduction or market conditions). Only 5.7 percent of cows were culled for poor production. Producers were more likely to cull cows based on age and teeth status than producers from other geographical regions.

Throughout this publication, discounts for certain traits or characteristics are reported. These discounts were reported from an Arkansas Livestock Market Survey conducted in 2001. The objective of the survey was

to determine the significant factors affecting the selling price of cows. The amount of discounts can vary as cow supply and demand changes. Over the long term, however, these traits or characteristics are usually always discounted, but the amount of the discount may change.

Therefore, the objective of this fact sheet is to discuss the factors affecting the selling price of cows and to explore different management alternatives to improve the value of cull cows. Cow genetics, market trends, cull cow quality grades, management strategies and other management factors affecting cull cow values are discussed. All prices are expressed in dollars per cwt.

What Determines the Value of Cull Cows?

A number of factors affect the value of cull cows. They include cow type, pregnancy status, breed or breed type, color, horn status, frame score, muscle thickness, fill, USDA Quality Grade for slaughter cows, brands, health, body weight and age. Research shows that the live value of cull cows is related to their body condition score (BCS). University of Arkansas scientists reported that the live value of very thin cows (BCS 2) was lower than the value of cows in good to fat condition (BCS 6, 7 and 8). Interestingly, live values increased from a low of \$35 per cwt. for thin cows to a high of \$41 per cwt. for BCS 7 cows, and then tended to decline for cows with BCS 8 and 9.

Cow Type (Replacement or Slaughter)

The 2001 Arkansas Livestock Marketing reported that the selling price of replacement cows (\$48.39) was greater than the selling price of slaughter cows (\$39.22).

Pregnancy Status

Replacement cows in their third trimester sold for the highest price (\$50.33), followed by cows not checked for pregnancy (\$48.97), second trimester (\$47.59), first semester (\$45.67) and cows not pregnant (\$43.86). Slaughter cows in their first (\$40.19), second (\$40.18) and third (\$39.86) trimesters and not pregnant (\$39.50) sold for the same price, but all prices were higher than the price received for cows not checked for pregnancy (\$38.98). It appeared that buyers for replacement cows were more willing to take a gamble with cows not checked for pregnancy than buyers of slaughter cows.

Breed or Breed Type

Twenty-six breeds or breed types represented 99.0 percent of the total cows. The breeds or breed types were based upon common industry perception rather than actually knowing the breed composition. This is what a buyer must do before a selling price can be offered. There was a significant cow type by breed or breed type interaction (Table 1). The price spread from the highest to lowest priced breed or breed types for replacement and slaughter cows was similar (\$5.05 and \$5.09, respectively). It appeared the buyers who were purchasing replacement cows paid more for the Angus breed or breed types and less for cows that contained Dairy, Longhorn and Continental breeding. Buyers of slaughter cows, however, paid more for the Continental breeds or breed types than cows of English, Longhorn or Dairy breeds or breed types. This may be due to heavier carcass weights and higher dressing percents from Continental breed or breed types compared to English or Dairy breed or breed types.

Many cattle breeds or breed types were very similar in selling price. For example, the prices received for replacement AC, A, Abq, HC, AH, Lm, AHBq and ContBq cows were not different. This is designated by the common superscript "d." Another example of how the superscripts can be used is comparing the selling price of the different breed or breed types for slaughter cows. Limousin (Lm), CLm, CB and ContBq selling prices were not different, and they share the superscript "d." Limousin (Lm), however, did have a higher selling price than cows of Continental breeding.

Table 1. The average selling price of replacement and slaughter cows sold based on breed or breed type.^a

Replacement Cows		Slaughter Cows	
Breed or Breed Type ^b	Average ^c	Breed or Breed Type ^b	Average ^c
AC	\$50.96 ^d	Lm	\$41.80 ^d
A	\$50.72 ^d	CLm	\$41.24 ^{d, e}
Abq	\$50.62 ^d	CB	\$40.55 ^{d, e}
HC	\$50.30 ^{d, e}	ContBq	\$40.38 ^{d, e}
AH	\$50.29 ^{d, e}	Cont	\$40.32 ^e
Lm	\$49.82 ^{d, e}	AH	\$40.32 ^e
AHBq	\$49.67 ^{d, e, f}	CBq	\$40.27 ^f
ContBq	\$48.72 ^{d, e, f}	HBA	\$40.16 ^g
AB	\$48.52 ^{e, f}	Bx	\$40.11 ^g
CLm	\$48.50 ^{e, f}	AB	\$40.03 ^g
B	\$48.23 ^{e, f}	HB	\$39.93 ^g
CBq	\$48.15 ^{e, f}	C	\$39.90 ^g
HBA	\$47.89 ^{e, f}	B	\$39.91 ^g
C	\$47.76 ^f	AHBq	\$39.81 ^{g, h}
Bq	\$47.59 ^f	Sm	\$39.65 ^{g, h}
HLm	\$47.52 ^{f, g}	Bq	\$39.63 ^{g, h}
Cont	\$47.47 ^{f, g}	EngBq	\$39.60 ^{g, h}
HB	\$47.26 ^{f, g}	HC	\$39.29 ^{g, h}
EngBq	\$47.31 ^{f, g}	ABq	\$39.25 ^{g, h}
EngCont	\$47.30 ^{f, g}	HLm	\$39.22 ^{g, h}
Lg	\$47.29 ^{f, g}	AC	\$38.95 ^{g, h}
Dairyx	\$46.89 ^{f, g}	EngCont	\$38.91 ^{g, h}
CB	\$46.35 ^{f, g}	A	\$38.18 ^h
H	\$46.32 ^g	Lg	\$38.05 ^{h, i}
Bx	\$46.03 ^g	H	\$36.99 ^{h, i}
Sm	\$45.91 ^g	Dairyx	\$36.71 ⁱ

^a Breed or Breed Type By Cow Type (Replacement or Slaughter) Interaction (P < 0.0001)

^b Breed type = A - Angus, AB - Angus x Brahman, ABq - Brangus, AC - Angus x Charolais, AH - Angus x Hereford, AHBq - Angus x Hereford x 1/4 Brahman, B - Brahman, Bq - 1/4 Brahman x other crosses, Bx - Brahman x other crosses, C - Charolais, CB - Charolais x Brahman, CBq - Charolais x 1/4 Brahman, CLm - Charolais x Limousin, Cont - other Continental breeds, ContBq - other Continental breeds x 1/4 Brahman, Dairyx - Dairy crosses, EngBq - other English breeds x 1/4 Brahman, EngCont - other English x Continental crosses, H - Hereford, HB - Hereford x Brahman, HBA - Hereford x Brahman x Angus, HC - Hereford x Charolais, HLm - Hereford x Limousin, Lm - Limousin, Lg - Longhorn, Sm - Simmental.

^c Average (dollars/cwt.).

^{d, e, f, g, h, i} Averages within columns without a common superscript differ (P < .01)

Color

Eleven colors represented 99 percent of the total population (Table 2). For replacement cows, black (\$49.59) and gray (\$49.42) cows sold for the highest prices, and white (\$47.17), spots or striped (\$47.05), red-white faced (\$47.04) and brown or brown white-face (\$46.09) sold for a lesser price. Brown or brown white-face cows, however, sold for a higher selling price for slaughter cows. As reported for cow breed or breed types, the price spread between the higher to lesser-priced slaughter and replacement cows was small (\$3.50 and \$2.13, respectively).

Table 2. The average selling price of replacement and slaughter cows sold based on calf color.^a

Replacement Cows		Slaughter Cows	
Color	Average ^b	Color	Average ^b
Black	\$49.59 ^c	Brown and Brown White Face	\$40.51 ^c
Gray	\$49.42 ^{c, d}	Yellow	\$40.26 ^c
Black-White Face	\$48.76 ^{d, e}	White	\$40.14 ^c
Yellow-White Face	\$48.73 ^{d, e}	Red	\$39.84 ^c
Red	\$48.50 ^{d, e}	Yellow-White Face	\$39.78 ^c
Yellow	\$47.78 ^{e, f}	Gray	\$39.59 ^{c, d}
Gray-White Face	\$47.56 ^{e, f}	Black	\$39.29 ^{c, d}
White	\$47.17 ^g	Gray-White Face	\$39.11 ^{c, d, e}
Spots or Striped	\$47.05 ^g	Black-White Face	\$38.69 ^{d, e}
Red-White Face	\$47.04 ^g	Spots or Striped	\$38.57 ^{d, e}
Brown and Brown White Face	\$46.09 ^g	Red-White Face	\$38.38 ^e

^a Color by Cow Type Interaction (P < 0.0001).

^b Average (dollars/cwt).

^{c, d, e, f} Averages within columns without a common superscript differ (P < 0.01)

Horn Status

Most of the cows were polled (85.9 percent). The selling prices between replacement polled or horned cows were different (\$48.63 and \$46.81, respectively), but the selling prices between polled or horned slaughter cows were not different (\$39.16 and \$39.65, respectively). At this current pricing level for slaughter cows, there is no incentive to encourage cow-calf producers to eliminate horns.

Frame Score

Large-, medium- and small-framed cows made up 44.6 percent, 43.01 percent and 12.4 percent, respectively, of the cows surveyed. The large-framed cows weighed 1,186 pounds and the medium- and small-framed cows weighed 980 pounds and 809 pounds, respectively. The selling prices for large-, medium- and small-frame replacement cows were \$47.08, \$49.46 and \$48.11, respectively, and were different from each other. Those buyers interested in purchasing replacement cows paid more for medium- and small-framed replacement cows than they paid for large-framed replacement cows. When buyers were purchasing slaughter cows, large-framed cows received the higher selling price. The selling prices of slaughter large-, medium- and small-frame cows were different from each other and were \$40.19, \$39.07 and \$35.28, respectively.

Muscle Thickness

The percentage of cows that were classified muscle score 1, 2 and 3 were 46.7 percent, 42.1 percent and 11.2 percent, respectively. The selling prices for muscle score 1 and 2 replacement cows were not different (\$48.72 and \$48.44, respectively) but were higher than the selling price for muscle score 3 replacement cows (\$46.33). For slaughter cows, the selling prices across muscle scores were all different from each other (\$40.23, \$38.76 and \$36.77, for muscle scores 1, 2 and 3, respectively). Muscle thickness is a major pricing concern when cows are

purchased for slaughter. The National Beef Audit reported a loss of \$18.70 per marketed cow due to inadequate muscling. With a \$3.46 difference between muscle score 1 and 2 slaughter cows, a pricing incentive exists to encourage cow-calf producers to increase muscling in the cowherd.

Fill

The percent of cows that were classified as gaunt, shrunk, average, full and tanked were 11.3 percent, 35.1 percent, 38.1 percent, 13.25 percent and 2.3 percent, respectively. The selling prices for shrunk, average, gaunt, full and tanked replacement cows were \$49.78, \$48.59, \$47.57, \$46.33 and \$44.35, respectively, and were different from each other. The selling prices for tanked and shrunk slaughter cows were \$40.65 and \$39.50, respectively, and were not different. Tanking cattle on hay and water prior to selling may not be cost effective if the value of the additional weight is offset by a discount due to excessive fill. The selling price for shrunk slaughter cows was not different from average fill slaughter cows (\$39.24), but average fill slaughter cows were less than the selling price for tanked slaughter cows. The selling prices for full (\$37.42) and gaunt (\$38.29) slaughter cows were not different but were lower than the selling prices for tanked, shrunk and average fill slaughter cows.

USDA Quality Grades

Only the slaughter cows were assigned a USDA Quality Grade. The percent of slaughter cows that graded USDA Commercial, Utility, Cutter and Canner were 11.3 percent, 11.3 percent, 37.8 percent and 39.6 percent, respectively. The average body weights for USDA Commercial, Utility, Cutter and Canner were 1,128 pounds, 1,158 pounds, 1,028 pounds and 887 pounds, respectively. The selling price for USDA Utility slaughter cows (\$37.28) tended to be higher than the selling price for USDA Commercial, Cutter and Canner (\$36.33, \$36.12 and \$36.02, respectively).

USDA Commercial

The Commercial grade is limited to cows over approximately 42 months of age (Figure 1). Cattle qualifying for the Commercial grade will differ considerably in cutability because of widely varying combinations of muscling and degree of fat thickness. Cattle with higher cutability than normal for this grade are thickly muscled and have a lower degree of fatness. The thick, full muscling over the top results in a rounded appearance with little evidence of flatness. The thickness through the middle part of the rounds is greater than over the top, and the thick muscling through the shoulders causes them to be slightly prominent. Although such cattle have less thickness of fat over the back and loin than described as typical, evidence of more fatness than described is especially noticeable in the brisket, flanks, twist and udder, and the muscling is firmer than described.

Conversely, cattle with lower cutability than normal for Commercial grade are thinly muscled and have a higher degree of fatness. The distribution of fat is not typical, being thicker over the crop, back, loin and rump while the brisket, flanks, twist and udder indicate less fatness. The back and loin break sharply into the sides, and the width over the back is much greater through the rounds and shoulders. For Commercial cows the dressing percentage ranges from 50 to 55 percent and backfat ranges 0.4 to 0.6 inches.



Figure 1. Commercial Grade Cow

USDA Utility

The minimum degree of finish required for Utility grade varies throughout the range of maturity from a very thin covering of fat for cattle under 30 months of age to a slightly thick fat covering. This fat covering generally is restricted to the back, loin and rump for the very mature cattle, the crops are lightly thin and the brisket, flanks and cod or udder indicate very slight fullness.

Cattle qualifying for Utility grade vary somewhat in cutability, especially among older animals. Those under 42 months of age are required to have very little fatness to qualify for the grade; thus, most of the variation in cutability of such cattle is due to differences in muscling. Therefore, cattle with thicker muscling than normal and less external fat than specified for this

grade will have higher cutability than cattle with thinner muscling and more fatness. Generally, Utility cows with more than 0.25 inches backfat are termed “breaking Utility” (Figure 2) and those with less than 0.25 inch backfat are termed “boning Utility” (Figure 3). The Utility cow’s dressing percentage ranges from 50 to 55 percent and backfat ranges from 0.2 to 0.5 inches.



Figure 2. Breaking Utility Grade Cow



Figure 3. Boning Utility Grade Cow

USDA Cutter

The degree of finish in slaughter cattle in the Cutter grade ranges from practically none in cattle under 30 months of age to a very thin covering of fat in very mature cattle (Figure 4). The range in cutability among cattle that qualify for this grade will be narrow



Figure 4. Cutter Grade Cow

because of a very small variation in fatness and muscling. The Cutter cow's dressing percentage ranges from 44 to 46 percent and backfat ranges from 0.0 to 0.05 inches.

USDA Canner

Canner grade cattle are those, which are inferior to the minimum specified for the Cutter grade (Figure 5). The Canner cow's dressing percentage ranges from 36 to 40 percent and has no backfat.



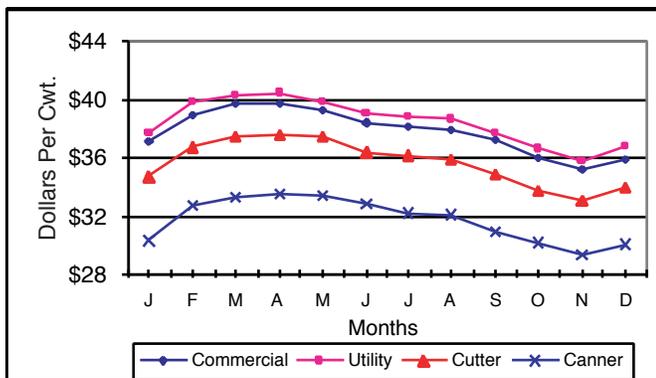
Figure 5. Canner Grade Cow

Seasonal Market Trends

Cull cow prices in Arkansas generally follow a seasonal pattern (Figure 6). Prices are highest in the spring (March and April) and lowest in the fall (November). Prices for Canner cows are significantly lower throughout the year than the prices for Commercial, Utility and Cutter.

In 2001, selling price varied by month with greater prices recorded in March (\$46.61), April (\$46.42) and May (\$47.28) and lower prices in September (\$43.51), October (\$40.51) and November (\$38.72). There were no differences between the selling price of replacement cows for March (\$51.97), April (\$51.98) or May (\$51.60), but the fall months were different from each other (September: \$47.48,

Figure 6. Monthly Average Prices for Commercial, Utility, Canner and Cutter Cull Cow Grades (25 Years)



Source: USDA Agricultural Marketing Service

October: \$45.01 and November: \$43.11). For slaughter cows, the selling prices for March (\$41.24) and April (\$40.87) were not different, but the remaining months (May, September, October and November) were different from each other (\$42.97, \$39.54, \$36.00 and \$34.32, respectively).

Brands

Ninety-one percent of the cows did not have a brand, whereas 6.7 percent had one brand and 1.6 had two or more brands. There were no differences between the selling price of replacement cows with one brand (\$48.39), with two or more brands (\$48.63) or with no brands (\$48.39). The selling price of slaughter cows was higher for cows with one (\$40.32) and two or more brands (\$40.98) than it was for slaughter cows with no brands (\$39.11). There was no difference in selling price of replacement or slaughter cows based upon brand location. Brands cost the industry \$3.10 per marketed cow due to reduced hid value, but at the current price structure for brands there is no encouragement for producers to change their branding practices.

Health

Over 94 percent of the cows surveyed were healthy. For slaughter cows, prices for healthy (\$39.86), lumps (\$34.47), lame (\$32.89), sick cows (\$25.50), and bad eyes (\$25.31) were all different from each other. In replacement cows, healthy (\$48.47), lumps (\$47.23) and bad eyes (\$45.31) selling prices were not different. Also lumps, bad eyes, lame (\$43.85) and sick cows (\$40.25) selling prices were not different.

Body Weight

As selling weight increased, price per cwt. increased. The positive relationship between weight and price per cwt. for cows is opposite of the relationship between weight and price for feeder cattle. Cows that weighed less than 700 pounds had an average selling price of \$27.54, whereas the average selling price for 700 to 899 pounds, 900 to 1,099 pounds, 1,100 to 1,299 pounds and 1,300 to 1,499 pounds was \$33.74, \$38.01, \$39.85 and \$39.91, respectively.

Age

The average selling price for replacement cows decreased with age and was \$59.51, \$55.78, \$53.84, \$50.73, \$49.95, \$47.67, \$47.30, \$41.71 for two, three, four, five, six, seven, eight and greater than eight year old replacements, respectively. All selling prices between ages were different from each other except for the selling price for the seven and eight year old replacement cows. The selling price for the two, three, four, five, six, seven, eight and greater than eight year old slaughter cows was \$43.24^a, \$41.84^{a,b},

\$41.17^{a,b,c}, \$39.94^{b,c}, \$39.87^{c,d}, \$39.51^d, \$38.43 and \$35.69, respectively. Ages with a common superscript did not differ.

Managing Cull Cows to Improve Returns

The sale of cull cows at weaning represents 15 percent to 20 percent of the cow-calf producer's income. Assuming average gains (1.5 lb/hd/day) and minimal death loss (2 percent), producers can realize an average advantage of \$60/head if, rather than selling cull cows at weaning (fall), they carry them into spring (February). Based on CattleFax information, this practice has been profitable 20 out of the last 21 years. If adequate feed resources are not available, then feed costs and performance limit profits. Also, cull cows can be upgraded in quality, which could add to profits. Profits from extending ownership of cull cows are primarily due to normal seasonal price improvements from fall to spring.

Management Plan for Cull Cows

As illustrated in Figure 6, the seasonal market low for cull cows is in the late fall (November). When keeping cull cows to graze in the winter, they should have sound feet, legs and teeth, show no signs of anaplasmosis or Johne's disease, not be pregnant, be medium to large frame and show no signs of cancer eye or any other infections. Deworm the cows in the fall.

Winter-feeding forage options for cull cows in Arkansas are limited to small-grain pastures or stockpiled forages (warm or cool season grasses) or hay. Stockpiled fescue, properly managed and

utilized, can provide an inexpensive source of nutrients for cull cows for most of the winter-feeding period. It is high in nutrient content, usually averaging 12 to 16 percent crude protein and 58 to 65 percent total digestible nutrients (TDN) on a dry matter basis. When properly managed and fertilized in late summer (40 to 60 pounds of nitrogen per acre) with adequate fall rains, production can reach 2,000 to 3,000 pounds of dry matter per acre. Production cost of stockpiled fescue is about \$14 per ton of dry matter. Providing limited amounts of stockpiled fescue by strip grazing cattle should allow approximately 70 percent forage utilization, which can decrease the cost of utilized forage to \$20 per ton.

The expected performance and cost of gain for BCS 3 cull beef cows fed stockpiled fescue and corn to achieve BCS 6 in 91, 112 or 145 days are shown in Table 3. To maintain the same weight gains using other feedstuffs, the rations should contain adequate protein (about 8 percent, dry matter basis) and the TDN levels shown in Table 3. Energy (TDN) is usually the most limiting nutrient for cattle grazing on stockpiled fescue. Average rate of gain increased substantially by supplementing stockpiled fescue with 1 to 5 pounds of corn per head daily. Supplemental corn was efficiently utilized with only 4.1 to 4.4 pounds of corn required per pound of weight gain. Another advantage of supplemental corn is that it will whiten the external fat of cows. Yellow fat is discounted, especially in the slaughter cow market, so whiter fat is advantageous. Stockpiled fescue alone, without supplemental grain, would give daily gains of less than 1.5 pounds. This would result in an extended feeding period and not allow the advantage of timely purchase/sell margins.

Table 3. Performance and Cost of Gain for Thin Cull Beef Cows (BCS 3) Managed to Achieve a Good Body Condition (BCS 6) in 91, 112 or 145 days.^{1, 2}

Item	Pounds Corn per Head per Day		
	1	3	5
Stockpiled Fescue, lb/hd/day ³	22.6	21.5	20.3
Diet Crude Protein, % dry matter basis	13.8	13.6	13.5
Diet TDN, % dry matter basis	62	64	66
Days Required (BCS 3 to BCS 6)	145	112	91
Average Daily Gain, lb.	1.66	2.15	2.65
Total Corn Fed, lb. ⁴	145	336	455
Corn/lb Weight Gain, lb. ⁴	4.4	4.2	4.1
Total Stockpiled Fescue/hd, lb. ³	3,279	2,403	1,843
Total Feed/hd, lb. ³	3,410	2,694	2,244
Total Feed/lb. of Gain, lb. ³	14.2	11.2	9.4
Feed Cost/lb. Gain ⁵	\$0.21	\$0.21	\$0.21

¹ Crude protein and TDN composition values (percentage, dry matter basis), respectively, were for stockpiled fescue, 14 and 61; and for corn, 9.8 and 90. Rumensin[®] was fed in the corn supplements.

² Starting point was a non-pregnant, mature beef cow weighing 950 lb.

³ Dry-matter basis.

⁴ As-fed basis.

⁵ Cost were as follows: Stockpiled fescue, \$1.00 per cwt. (dry matter basis, \$14/ton fescue production cost, 70 percent forage utilization by strip grazing); Corn, \$6.00 per cwt. (as-fed basis); and Mineral mix including Rumensin[®] was added at 1/4 pound (4 oz.)/hd/day to the supplemental corn, \$24 per cwt. (as-fed basis).

Table 4. Mineral Requirements of Cull Beef Cows and Mineral Composition of Stockpiled Fescue

Mineral	Requirement in Diet (Dry Matter)	Average Composition of Stockpiled Fescue (Dry Matter)
Sodium, %	0.08	- ^a
Calcium, %	0.21	0.50
Phosphorus, %	0.13	0.36
Magnesium, %	0.10	0.27
Sulfur, %	0.15	0.27
Potassium, %	0.60	2.78
Selenium, ppm	0.10	0.07 ^b
Copper, ppm	10.0	10.2
Iron, ppm	50.0	118.0
Manganese, ppm	20.0	132.0
Zinc, ppm	30.0	25.0

^a University of Arkansas Cooperative Extension Service forage database shows over 90 percent of forages produced throughout the state are deficient in sodium for beef cattle.

^b Average of 15 samples of fescue and mixed grass hay.

Forages, including stockpiled fescue, are deficient in minerals. Therefore, cattle should be provided a mineral supplement at all times. The minerals most likely to be deficient in stockpiled fescue for cull cows are sodium (provided as salt), selenium, copper and zinc (Table 4). The calcium, phosphorus, magnesium, sulfur, potassium, iron and manganese content of stockpiled fescue is usually adequate to meet the requirements of cull cows. The mineral supplement should contain adequate amounts of vitamins A, D and E. For improved feed efficiency, an ionophore may be fed to mature beef cows. During the first five days, cattle should receive no more than 100 mg per day contained in no less than 1 pound of feed. Rumensin[®] could be fed at 100, 150 and 200 mg per head per day, respectively, for supplemental corn fed at 1, 3 and 5 pounds per head day. (For additional information on vitamin and mineral supplementation refer to FSA3035, *Mineral and Vitamin Supplementation of Beef Cows in Arkansas*, which is available at county offices of the University of Arkansas Cooperative Extension Service.)

Producers who feed cull cows should compare nutrient cost, especially cost per unit of TDN from grain and by-product feeds, to determine which feeds provide nutrients at the lowest cost. Many by-product feeds, such as rice bran, soybean hulls, corn gluten feed and wheat middlings are plentiful in the state and often provide low cost nutrients to help reduce cost of gain. Some of these feeds such as soybean hulls are highly digestible fiber feeds that complement forage digestion when higher levels of supplementation are needed. (For information on by-product feeds refer to University of Arkansas Cooperative Extension Service fact sheet FSA3047, *Alternative Feeds for Beef Cattle*.)

Information in Table 5 shows the performance and cost data for each change in one BCS (BCS 3 to 4, etc.) and level of grain feeding. This information,

along with forage and grain costs, should be used to determine the best combination of forage and supplemental grain to achieve production goals. A producer may choose to start the feeding period with stockpiled fescue and 1 pound of supplemental corn per head per day. Later, depending on the forage supply and other factors, 3 to 5 pounds of corn may be needed to achieve desired market weight and condition. Various combinations of grain supplements or other supplemental feeds or feed by-products could be used to reach the desired BCS for marketing.

Table 5. Performance and Estimated Cost of Gain for Cull Cows Grazed on Stockpiled Fescue and Fed Various Amounts of Corn.¹

	Pounds Corn/Head/Day		
	1	3	5
BCS 3 to BCS 4 – 70 lb gain			
Stockpiled fescue, lb/hd/day	21.2	20.1	18.9
Days required	42	32	26
Average daily gain, lb	1.67	2.19	2.69
Total corn fed, lb	42	96	130
Corn/lb weight gain, lb	4.2	4.0	4.0
Feed cost/lb gain ³	\$0.20	\$0.20	\$0.20
BCS 4 to BCS 5 – 80 lb gain			
Stockpiled fescue, lb/hd/day	22.5	21.3	20.1
Days required	48	37	30
Average daily gain, lb	1.67	2.16	2.67
Total corn fed, lb	48	111	150
Corn/lb weight gain, lb	4.2	4.1	4.0
Feed cost/lb gain	\$0.21	\$0.21	\$0.21
BCS 5 to BCS 6 – 90 lb gain			
Stockpiled fescue, lb/hd/day	23.8	22.6	21.4
Days required	55	43	35
Average daily gain, lb	1.65	2.12	2.60
Total corn fed, lb	55	129	175
Corn/lb weight gain, lb	4.5	4.4	4.3
Feed cost/lb gain	\$0.22	\$0.22	\$0.22

¹See footnotes at bottom of Table 3.

Other Management Practices to Improve the Value of Cull Cows

Bruise Trim and Condemned Carcasses –

Market cows and bulls possess less protective fat cover than their fed-beef counterparts (heifers and steers), making them more susceptible to bruising. The frequency of carcass bruising is alarmingly high: 53 percent of bulls and 89 percent of cows.

Lameness –

Lameness represents a major cost to producers, packers and others involved in the production, marketing and slaughter of market cows and bulls. Lameness becomes weak and more susceptible to injury during transportation. Carcass yield is severely reduced when packers trim around and through infected joints. Lameness was discounted \$6.97 per cwt. in the 2001 Arkansas survey. For a 1,100 pound cow, that is a discount of over \$76.

Cattle that are lame usually spend more time lying down. This increases the amount of manure on the legs, sides, etc., which could increase the probability of *E. coli* O157:H7 contamination. Culling these cattle in a timely manner should reduce the amount of manure, and therefore, reduce the chance of *E. coli* O157:H7 entering processing facilities. Clean animals carry less contaminants. Therefore, it is not advisable to hold cull animals in a manure covered barn lot prior to selling.

Cancer Eye – Approximately 5 percent of the beef cows had signs of cancer eye in 1999. Cancer eye should be treated immediately upon detection. Cattle should be culled when cancer eye is in its early stages. Cows were discounted \$14.55 per cwt. for bad eyes in the 2001 survey.

Injection Site Lesions – Proper injection-site techniques must be followed when administering animal health products to cows and bulls. Remember that although it will be sold as a cull cow or bull, the meat from the culls will be processed

for human consumption. It is also very important to follow the proper withdrawal times before slaughtering cull cows.

Downer Cattle – Cattle producers must no longer take downer cattle to livestock auction and put them on public display. Downer cattle should be euthanized on the farm.

Summary

The sale of cull cows represents about 15 to 20 percent of the gross income for cow-calf producers. There may be opportunities for cattle producers to increase their income by improving the value of cull cows before they are marketed. Most of the profit from feeding cull beef cows results from timely purchase of thin, healthy cows with potential for large compensatory gain and an increase in carcass grade. Cull cows purchased at the low point of the price cycle and sold at the high point, in combination with a well-planned winter feeding program, offers the greatest potential for profit. It's important to monitor costs and cow body condition in order to manage the cull cow enterprise most effectively.

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