



# Consider Yeast Culture as a Feed Additive for Growing and Finishing Beef Cattle

*Craig R. Belknap, Diamond V Mills, Inc.*

*Grant Crawford, U of M Beef Team*

Over the last sixty years, many things have changed in the way we feed cattle. Cattle have changed, facilities have changed, management has changed, and of course, diets have changed. Cattle feeders learned early on that getting cattle started right is essential to keep them out of the sick pen and to get them to gain and convert efficiently. One of the tools that has been a resource for cattle feeders over the last 60+ years is yeast culture. In particular, Diamond V Yeast Culture is an all-natural feed ingredient manufactured solely for the purpose of adding value to animal nutrition. It is not a by-product of another process, and is not made up of “off-spec” yeast from the human baking or brewing industry. Rather, it is manufactured exclusively for animal nutrition, consisting of a two-stage fermentation process. The end result is a product that has value not for its live yeast count, but rather for the metabolites produced during the fermentation process.

Considerable research has been conducted over the years which show that Diamond V Yeast Culture increases the population of rumen bacteria by up to 59% (Figure 1) (Harrison et al, 1988; Weidmeier et al, 1987). This increase in “bug” numbers in turn helps increase feedstuff digestibility, as has been observed in previous research (Yoon and Garrett, 1998). Feed intake is often also increased, especially in receiving calf rations (Phillips and VonTungeln, 1985). Therefore, as more nutrients go into the animal via greater intake, and more nutrients are provided to the animal via greater digestibility, the animal is put on a generally higher plane of nutrition. This is

especially critical during high-stress times such as weaning and receiving. In fact, research indicates that feeding this additive significantly ( $P < 0.05$ ) reduces pull rate in stressed cattle (Zinn et al, 1999). This benefit alone is enough to provide for a very favorable return on investment when fed during the starter period. Figure 2 depicts the advantage observed in a trial conducted at a Midwest Feed Manufacturer Research Farm (1992). The resulting return on investment observed in this trial due to a reduction in medicine costs alone was approximately 6.5:1. This does not take into account the improved performance due to greater health, the improved quality grade typically observed in healthy cattle, labor, yardage, mortality, etc.

However, not all cattle are what would be considered “high-stress” cattle. A recent trial at a Midwest Feed Manufacturer Research Farm (2005) evaluated the effects of Diamond V Yeast Culture in ranch-weaned cattle that had been on creep feed for approximately 100 days prior to weaning. Overall health was outstanding with these cattle. Calves were stepped up onto a texturized complete starter, with performance measured out to 28 days on feed. The results revealed that every day on test, calves that were on the yeast culture treatment consumed numerically greater dry matter and had a higher average daily gain than the control cattle (Table 1). Although the control group gained an exceptional 3.69 lb/hd/day, the yeast culture group still outperformed by gaining 3.98 lb/hd/day ( $P < 0.01$ ). Moreover, feed

efficiency was numerically better for the yeast culture group as well. Once again, when economics are applied to this trial, the net benefit of feeding yeast culture was over 20 cents/hd/day. This work, combined with additional field observations, reveals that Diamond V Yeast Culture is equally effective in low-stress receiving diets.

While receiving feeds are a great fit for Diamond V Yeast Culture, rising feed costs offer another huge opportunity

day due to feeding yeast culture. Moreover, feed efficiency was also improved from 6.45 to 5.95 lb feed/lb gain. When summarized, these cattle were on test an average of 86 days. Although feed costs, cattle prices, and other variables affect what the true net benefit of yeast culture is in growing and finishing diets, the return on investment is typically 4:1 or better when this summary data is applied to real-life economics. Of course, as corn prices and general feed costs climb to near-record highs, the

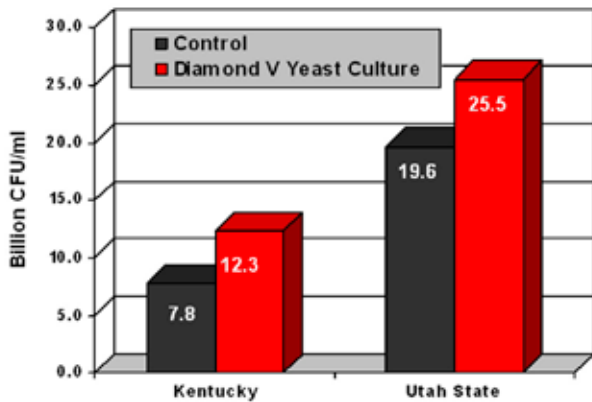


Figure 1. Effect of Diamond V Yeast Culture on total rumen bacteria (Harrison et al, 1988; Weidmeier et al, 1987).

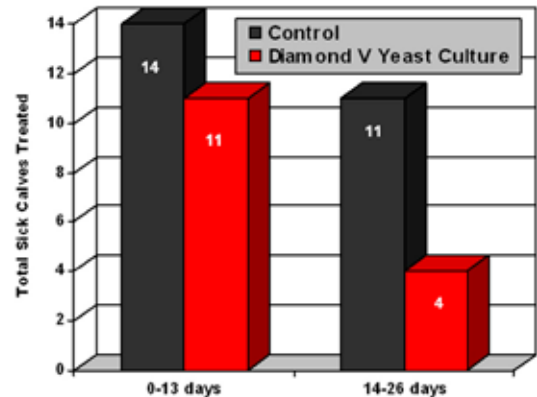


Figure 2. Effect of Diamond V Yeast Culture on total sick calves treated (Midwest Feed Manufacturer, 1992).

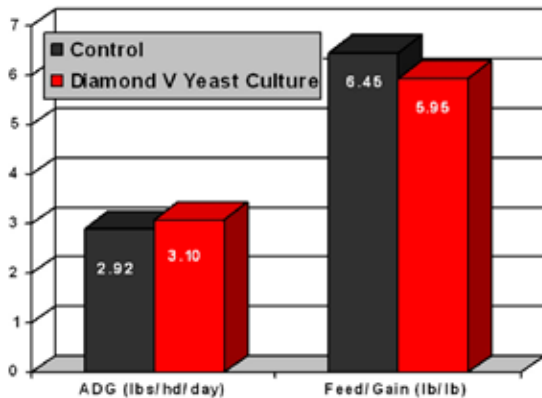


Figure 3. Effect of Diamond V Yeast Culture on performance of feedlot cattle fed an average of 86 days (Average of 23 trials consisting of 2498 head).

	Control	Diamond V Yeast Culture	P-Value
Initial Weight, lbs	596	596	--
Final Weight, lbs	703	712	0.01
ADG, lbs	3.69	3.98	0.01
DMI, lbs/hd/day	14.78	15.58	0.19
Feed:Gain	4.00	3.91	NS

Table 1. Effect of Diamond V Yeast Culture on 28-day performance of low-stress receiving cattle (Midwest Feed Manufacturer, 2005).

for a product that can enhance feed digestibility and efficiency. Numerous trials have been conducted evaluating the value of yeast culture when fed beyond the starter period. When this database of work is combined, there are a total of 23 beef feeding trials that have been conducted, involving 2498 head. When averaged on a trial basis, average daily gain was improved from 2.92 to 3.10 lb/hd/

benefit of products that can enhance feed efficiency become even more apparent.

In summary, yeast culture is an effective tool that has been employed by cattle feeders for years at varying degrees. Early research proves the efficacy of yeast culture in high-stress receiving diets. However, newer work

indicates a significant economic benefit when fed to low-stress arrival diets as well. This benefit in low-stress cattle is due primarily to improvements in gain and feed efficiency. With today’s feed costs, it is imperative to employ strategies that can improve feed efficiency within an operation. However, there must also be a substantial body of evidence that supports the use of such strategies. Diamond V Yeast Culture has been proven to provide a positive return when fed beyond the starter period, all the way through to finish. Being an all-natural product, there are no restrictions on product usage within “Natural” feeding programs. However, the product has been shown

to be very effective in combination with ionophores and/or other feed grade antibiotics as well. The general mode of action that this product relies on for efficacy lends itself to a wide variety of applications within various sectors of the beef industry.

*Diamond V Yeast Culture is one of several yeast products on the market. Please consult your nutritionist to select the best one for your operation.*

\*References available upon request.