

DEFINE AND IMPROVE YOUR HERD'S FEED CONVERSION RATIO

A feed conversion ratio is a quick and useful tool for dairy teams to benchmark change and progress. Since it uses inputs related to cost and income, it is closely related to income over feed costs, but not a replacement for it.

By Tony Hall

The well-established use of milk component pricing (\$'s paid per pound of

butterfat and milk protein) in the United States emphasizes the value of milk component yield. Recent increases in forage and feed ingredient prices confirm milk

producers and their advisory teams must get the most milk component yield and value out of each pound of milk cow dry matter intake. This, in effect, defines feed conversion efficiency (FCE).

To remove any ambiguity on how the FCE is calculated (either uncorrected milk yield vs. fat corrected milk, or energy corrected milk yield), a more direct and easy-to-use on farm comparison would be the amount of dry matter intake

required to make a pound of butterfat and milk protein, combined. This is an on-farm Feed Conversion Ratio (FCR) for the dairy herd.

This approach is in line with other segments of the livestock industry, where FCRs are calculated to benchmark efficiency (e.g. finishing beef cattle from 8.0 to 6.0; finishing pigs from 3.5 to 2.5, or broiler chicks from 2.3 to 1.7). In common with all livestock, a lower number ratio in FCR measurements is desirable.

Calculating a herd FCR

A herd FCR for cows in milk is easily calculated. For example, a herd with an aver-

age daily milk yield of 80 lbs. @ 3.7% fat and 3.1% milk protein has a milk component yield of $80 \times (3.7 + 3.1)/100 \Rightarrow 5.44$ lbs. of butterfat and protein combined. If the herd has a daily intake of 54.0 lbs. of dry matter, the FCR is calculated as $54.0/5.44 \Rightarrow 9.93$. In this example herd, it took 9.93 lbs. of dry matter intake to make 1.0 lb. of milk component yield.

On a herd basis, the FCRs found on commercial dairy farms will range from:

- 13.0 (a poor FCR, too much expensive DMI to make 1.0 lb. of milk component yield)
- 8.0 (a very good FCR, making the best use of DMI for 1.0 lb. of milk component yield)

The first step for owners, managers and nutritionists is to benchmark the herd to establish its FCR. The real challenge comes in ensuring the herd FCR is at least 10.0, and preferably much better (closer to 9.0). An FCR of less than 8.0 is unlikely on a herd basis, as it would indicate excessive live body weight loss in the milking herd.

The FCR is an easy benchmark for both dairy producers and their advisory team to calculate and set improvement goals. With regular use, it enables the team to quickly see how forage quality, ration alterations and environment/management changes can impact FCR and the bottom line.

Not unexpectedly, there is a strong relationship between FCR and income over feed costs (IOFC). The lower FCR herds have the better IOFC. The incentive for improvement in FCR is real. With milk cow TMR dry matter costs around 12¢/lb., and current milk component yield values around \$2.35/lb. for butterfat plus \$2.90/lb. for milk protein, a 0.5 reduction in FCR (say from 9.93 to 9.43) is worth up to 60¢ per cow daily.

Improving the herd FCR

There are many ration and cow management factors that positively influence FCR. One of the most important is overall ration digestibility. This encompasses making top

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quality forages (with the correct volatile fatty acid profile to conserve nutrients and minimize feedout losses), cut at the right growth stage so high NDF-d values and rate values (kd % hr) are achieved for high inclusion rates into milking cow rations.

Managing out sub-acute rumen acidosis will also be important. Here attention to detail on forage dry matters, TMR refusals, actual vs. calculated dry matter intakes per pen, along with timely TMR feeding schedules, TMR push-up routines, forage particle length, ration scratch factor, correct corn grist sizes, (dry vs. high moisture corn), the balance of fermentable starch and sugars in the rumen, the hygienic quality of the TMR, (minimizing molds and mycotoxins), cud chewing and adequate stall lying time will all be important.

Keep the farm team focused on reproduction, with the herd days in milk as close as possible to 180. Heat abatement will be needed to maintain a good FCR in summer, and clean fresh water should always be available. As fall approaches, check milk cow barn lighting for intensity and duration at cow level, preparing for shorter day length in winter.

FCR is a quick and useful on-the-spot tool for farm teams to benchmark change and progress. Since it uses inputs related to cost (TMR dry matter) and income (milk component yield and value), it is closely related to IOFC, but not a replacement for it. □



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