

# Kansas Agricultural Experiment Station Research Reports

---

Volume 0  
Issue 2 *Dairy Research (1984-2014)*

Article 145

---

1986

## Review of production responses from cows fed calcium salt of isobutyric and mixed 5-carbon volatile fatty acids

James R. Dunham

Follow this and additional works at: <https://newprairiepress.org/kaesrr>



Part of the [Dairy Science Commons](#)

---

### Recommended Citation

Dunham, James R. (1986) "Review of production responses from cows fed calcium salt of isobutyric and mixed 5-carbon volatile fatty acids," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 2. <https://doi.org/10.4148/2378-5977.3070>

This report is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Kansas Agricultural Experiment Station Research Reports by an authorized administrator of New Prairie Press. Copyright 1986 the Author(s). Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned. K-State Research and Extension is an equal opportunity provider and employer.



**K****S****U**

REVIEW OF PRODUCTION RESPONSES FROM  
COWS FED CALCIUM SALT OF ISOBUTYRIC AND  
MIXED 5-CARBON VOLATILE FATTY ACIDS

J. R. Dunham

## Background

Recent developments in dairy cattle nutrition have resulted in the marketing of a calcium salt of isobutyric and mixed 5-carbon volatile fatty acids (IsoPlus®). The FDA approved product has been neutralized with calcium to form a dry salt of the acids, which are found naturally in the rumen. The following review of research results is intended as a guide for feeding IsoPlus®.

## Research Results

A summary of demonstration trials in 34 commercial herds is shown in Table 1. In these trials, the experimental cows were fed 3 oz IsoPlus® daily either top-dressed or in total mixed rations. The rolling herd average of the farms ranged between 16,038 to 22,500 lb. Forages fed varied from mostly corn silage to mostly alfalfa haylage or hay. The milk production summary includes those cows and heifers in milk at the start of the trials and those cows and heifers that freshened after the beginning of the trials.

Table 1. Summary of demonstration trials in 34 commercial herds

| Stage of Lactation          | Months after Feeding IsoPlus® | Number of cows | Response, lb milk/day |
|-----------------------------|-------------------------------|----------------|-----------------------|
| Cows and heifers all stages | 1                             | 1651           | +0.7                  |
|                             | 2                             | 1434           | +1.3                  |
|                             | 3                             | 1177           | +1.7                  |
| Fresh heifers               | 1                             | 202            | +2.2                  |
|                             | 2                             | 146            | +2.3                  |
|                             | 3                             | 75             | +2.8                  |
| Fresh cows                  | 1                             | 462            | +3.0                  |
|                             | 2                             | 322            | +3.7                  |
|                             | 3                             | 161            | +4.2                  |

### Discussion

As shown in Table 1, the greatest response to feeding IsoPlus® occurred in fresh cows. Fresh heifers were less responsive. University studies have shown an average response of 4.2 lb of 4% fat-corrected milk/day during 305 lactation studies. However, the greatest response from IsoPlus® was during the first 32 wk of lactation, when nutritional stress was the greatest. Feeding IsoPlus® does not affect feed intake, milk composition, or reproduction.

### Recommendations

1. Herds producing less than 16,000 lb milk/cow/year should initiate improved feeding and management programs before feeding IsoPlus®.
2. The most economical returns can be expected in high-producing herds with feeding systems that can control intake of IsoPlus® at 3 oz/cow/day during the first 225 days of lactation.
3. The decision to include IsoPlus® in a feeding program should be based upon the cost of the additive in relation to the value of increased milk produced.



Dr. J. R. "Dick" Dunham at work in his office, assisting a dairy producer to balance his dairy ration.