KemTRACE® CHROMIUM

## What is KemTRACE® Chromium?

KemTRACE® Chromium is an easy-to-absorb form of chromium that enhances cellular function by improving how the turkey uses insulin and blood glucose. It helps reduce the negative impacts of stress by lowering corticosterone (stress hormone) levels. This leads to better feed conversion, increased weight gain, and reduced mortality.

**KemTRACE Chromium is backed by more than 25 years of research and investment, including a significant investment in turkey-specific chromium propionate research. It's a reliable, research proven nutrient for improving turkey performance.**

## Benefits of KemTRACE Chromium

### Improves cell function

Increases insulin sensitivity, which improves blood glucose utilization.[1]

### Reduces stress

Lowers corticosterone levels to help turkeys grow more efficiently and reach genetic potential.

### Boosts performance

Improves feed conversion and meat yield while reducing mortality percentage.

# Why KemTRACE Chromium?

### Made in the USA

KemTRACE Chromium is produced in the United States using domestically sourced ingredients.

### Two concentrations available

- 0.04% for use directly in complete turkey diets.
- 0.4% for use in premixes.

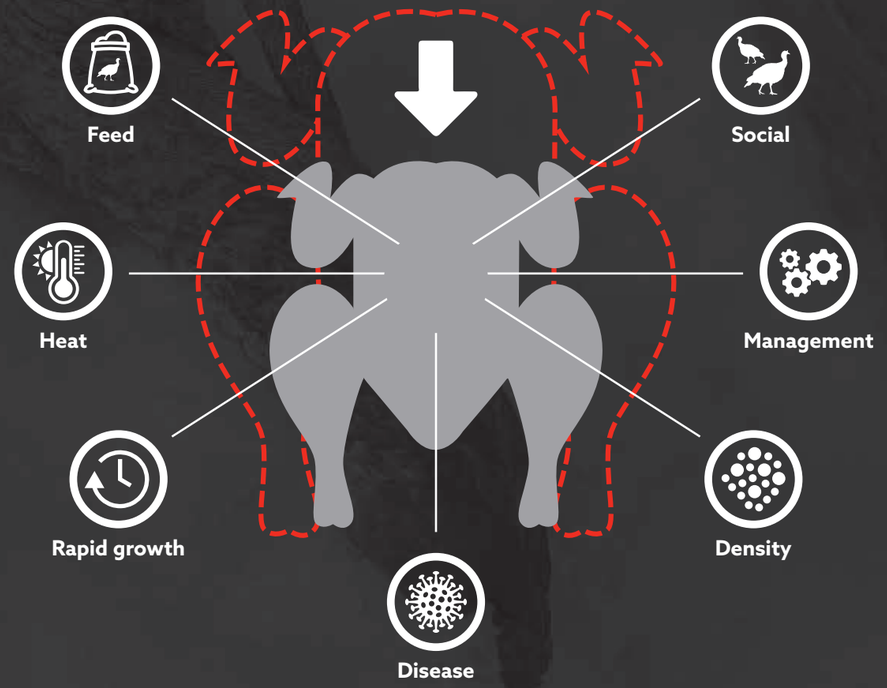
### Organic-compliant option available

KemTRACE Chromium-OR is OMRI Listed® and available for use in organic turkey production.

### First in over 40 years

It's the first trace mineral approved for use in growing turkeys in more than four decades.

## What types of stress do turkeys experience?






## How KemTRACE Chromium helps

The chromium supplied by KemTRACE Chromium impacts the turkey with two modes of action.

### 1 It improves turkeys' insulin sensitivity and blood glucose utilization.[1]

Glucose is the primary energy source for cellular activity. Improving insulin sensitivity results in more efficient use of blood glucose. That means cells can better fuel growth, immune function, and metabolic processes, leading to:

- Improved feed conversion ratio (FCR).[2]
- Greater average daily gain (ADG).[2]
- Higher final body weights.[2]

### 2 It reduces the levels of corticosterone, a stress hormone, in the blood.[3]

When turkeys face environmental, disease, or social stress, they release the hormone corticosterone. This redirects nutrients away from growth and towards managing stress, which can negatively impact performance. Minimizing the impact of corticosterone can result in:

- Reduced mortality.
- Improved feed conversion ratio.
- Better stress resilience.

**Stressors** → **Activate the hypothalamic-pituitary-adrenal (HPA) system** → **Activates the adrenal gland** → **Releases corticosterone** → **Impairs insulin sensitivity**

## Feeding instructions for growing turkeys

- KemTRACE Chromium 0.04%: Add 1 lb per ton of complete feed to provide 200 ppb (0.2 ppm) of chromium.
- KemTRACE Chromium 0.4%: Designed to be premixed prior to its inclusion into complete diets. Add the resulting 0.04% premix at a rate of 1 lb. per ton of complete feed to provide 200 ppb (0.2 ppm) of chromium.

Maximum feeding rate: Do not exceed 200 ppb.

**See label for complete feeding instructions.**

# Research

## Research Trial: Chromium's Impact on Final Bodyweight, FCR, and Mortality[2]

**A research trial using 528 Nicholas® toms obtained from a hatchery and transported to the research farm.**

Turkeys receiving supplemental chromium from KemTRACE Chromium had significantly higher body weights (BW) at 5, 7, and 13 weeks of age and tended to have higher BW at 9 and 15 weeks of age compared to the control (Figure 1).

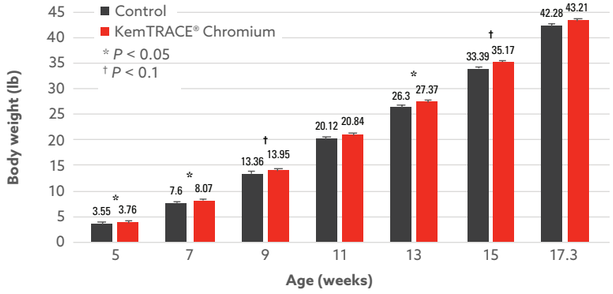



**Figure 1.** Effects of KemTRACE® Chromium on final bodyweight. Error bars represent the pooled SEM.
* Represents significant difference due to treatment, *P*<0.05. † Represents trend due to treatment, *P*<0.1.

Due to body weight differences at trial end, FCR was adjusted by 0.03 points per pound of meat. Turkeys fed KemTRACE Chromium had significantly lower BW-adjusted FCR at weeks 0-7 and 0-9 by 5 and 4 points, respectively, compared to controls (Figure 2). Numerical improvements of 4 and 2 points were also observed at weeks 0-15 and 0-17.3.

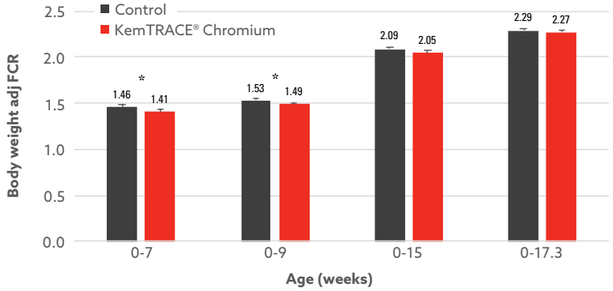



**Figure 2.** The effect of chromium supplementation on body-weight-adjusted FCR.
* Represents significant difference due to treatment *P* < 0.05.
Error bars represent the pooled SEM.

Turkeys provided supplemental chromium had a numerically lower mortality percentage at 0-7, 0-9, 0-11, 0-13, and 0-15 weeks by 1.03%, 1.38%, 1.77%, 1.46%, and 1.10%, respectively, when compared to the control birds (Figure 3). Overall mortality in the treatment group was 1.48% lower than in the control group.

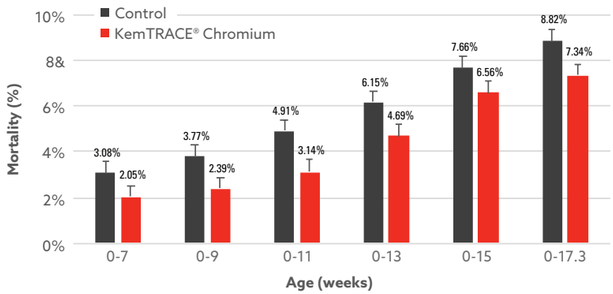



**Figure 3.** The effect of supplemental chromium on mortality.
Error bars represent the pooled SEM.



## Research Trial: Chromium's Impact on Corticosterone Levels and Mortality[3]

**Male poults reared from placement to 35 days in a brooder and then moved to a grower for the remainder of the study. Each group consisted of 280 turkeys.**

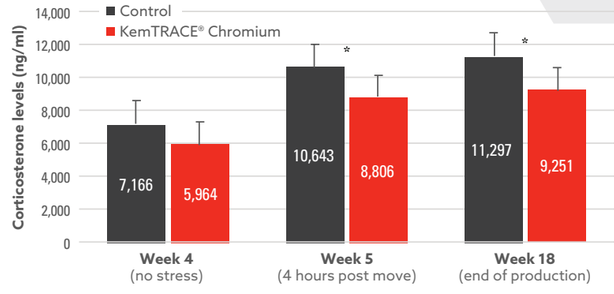



**Figure 4.** Blood corticosterone level at various time points.
* Represents trend due to treatment, *P* < 0.1. Week 5, *P* = 0.1. Week 18, *P* = 0.08.
Error bars represent the pooled SEM.

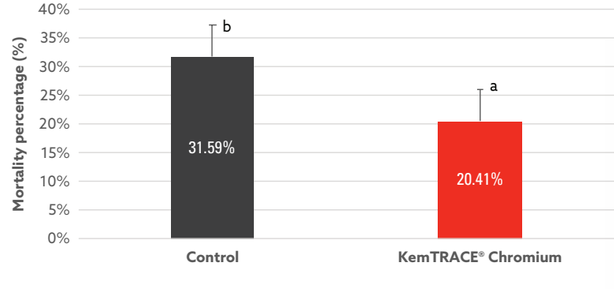



**Figure 5.** Pen mortality percentage during the grower period (5-19 weeks of age).
[a,b] Represents significant difference due to treatment, *P* < 0.05.
Error bars represent the pooled SEM.

Overall mortality percentage was significantly lower during the grower phase in the pens fed KemTRACE Chromium compared to pens fed the control diet.

# Why choose Kemin?

Kemin is the only company with an FDA-reviewed source of chromium propionate approved for use in growing turkeys, available exclusively as KemTRACE Chromium. It's manufactured with an established chain of custody and traceability and according to strict safety standards set by the FDA with materials sourced entirely from the U.S.



## Quality and safety: It's all by design

Only Kemin has invested more than 25 years and millions of dollars toward scientific research, validating the benefits of chromium propionate while bringing this essential trace mineral to millions of animals around the globe.

Kemin is the world's largest producer of chromium propionate and has conducted more than 50 peer-reviewed chromium research trials in order to add further assurances regarding product safety, efficacy, and traceability. Our rigorous regulatory approach demonstrates our commitment to safety and science.

KemTRACE Chromium is the **only FDA-reviewed source of chromium propionate** on the market today.

### Commitment to quality

KemTRACE Chromium is manufactured from materials sourced entirely from the United States, under strict quality control specifications that meet the food additive standards published in 21 CFR 573.304. Kemin also maintains a Food Safety System Certification (FSSC) 22000 — recognized under the Global Food Safety Initiative — for its manufacturing facility in Des Moines, Iowa.

### Confidence starts in the laboratory

The quality and safety of our products are paramount at Kemin, and processes are in place for testing not only our final products, but also our raw materials. With our quality control program, customers can have confidence we understand our technology, how our molecules work, and that the ingredients are safe and efficacious.

### Technical expertise at every turn

At Kemin, we are devoted to ensuring customers receive trusted nutritional advice when evaluating animal performance. KemTRACE Chromium is supported by our Technical Services team comprised of respected Ph.D. nutrition and animal health experts with an array of valuable experience in research and production.

### Designed for you

Our commitment to chromium promises to provide you with a high quality, safe, and efficacious product to help your birds reach their optimal performance while maintaining profit. Kemin understands your need to raise healthy turkeys that give consumers the nutritional and health benefits they are looking for. We focus our products and services on helping you achieve optimal nutrition, feed quality, gut health, and pathogen control.

Founded in 1961, animal health and nutrition is at the heart of what we do. Headquartered in Des Moines, Iowa, Kemin is a privately held, family-owned-and-operated company that spans six continents, serves more than 120 countries, and employs thousands of team members. We use our decades of experience and scientific expertise to unlock discoveries that improve turkey health – from better immune function to nutrient absorption.

**Explore what KemTRACE Chromium can do for your flock.**

KEMIN® Compelled by Curiosity™ | KemTRACE® CHROMIUM


REFERENCES

1. Spears, J. W., K. E. Lloyd, K. Krafka, J. Hyda, and J.L. Grimes (2024). Chromium propionate in turkeys: Effects on insulin sensitivity. Poultry Science, 103(1), 103215. https://doi.org/10.1016/j.psj.2023.103215
2. Determining The Effects of KemTRACE Chromium on Turkey Performance, TD-25-10434.
3. Determining The Effects of KemTRACE Chromium on Turkey Performance and Corticosterone Levels, TD-24-10278.





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