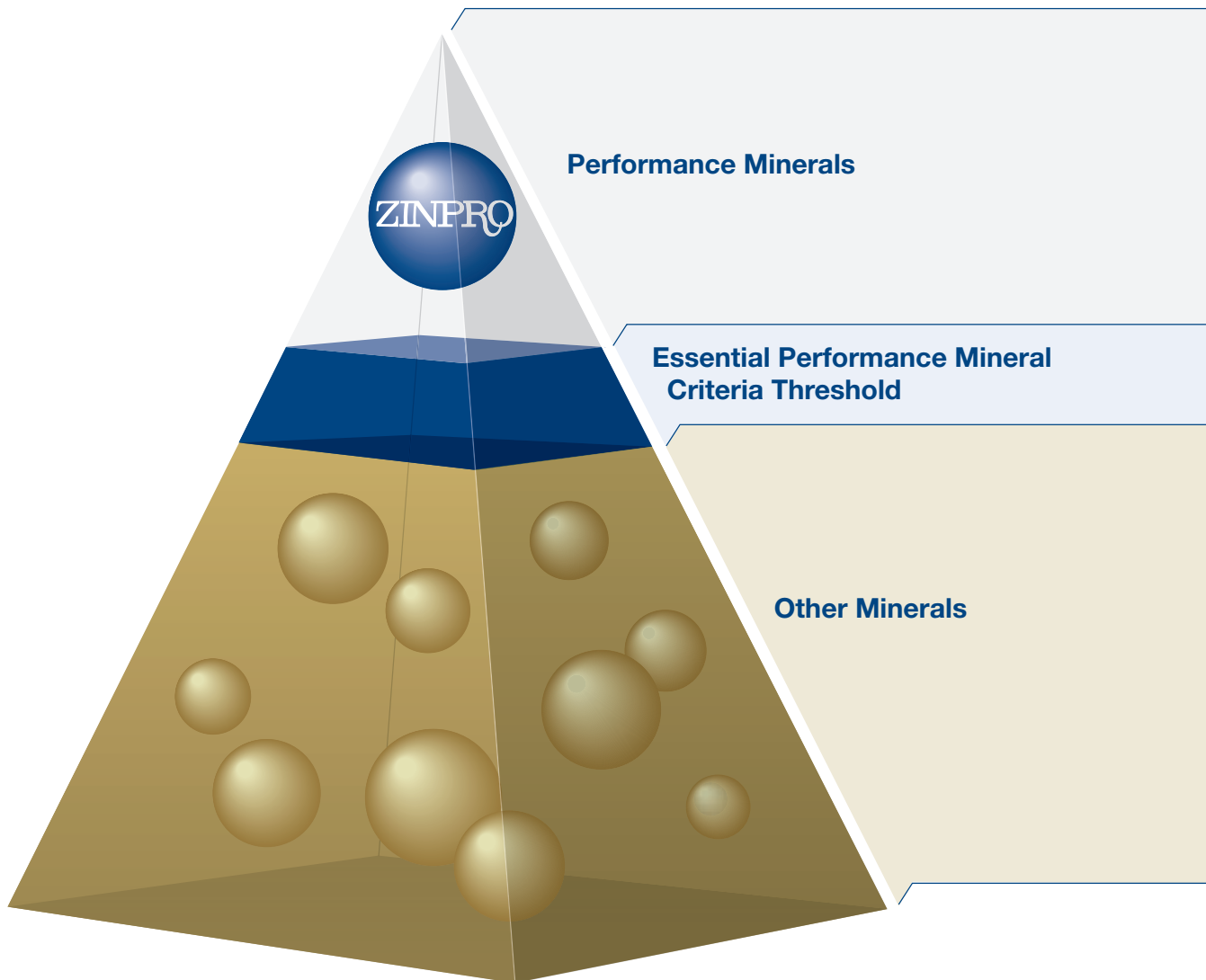




## *What is a Performance Mineral?*

Ok, so what do we mean when we say Zinpro has Performance Minerals? Quite simply, a performance mineral is more than just a class of minerals. To be a performance mineral, a product must meet numerous standards for product efficacy, quality, safety and economics, and it must be backed by a company that provides educational support, sound research and top-notch service.



## Return

---

- Must show a positive return on investment, beyond what normal or standard minerals can deliver.
- Economic (profit) analysis should be calculated from scientific research findings conducted on this specific product. (See the following Response, Repeatability, Research items that describe these criteria.)

## Response

---

- Demonstrates an improved performance response in the target species (beef, dairy, poultry, pigs, horses, etc).
- Response exceeds the level of performance obtained by other standard mineral supplementation.

## Repeatability

---

- Research should be repeated to show consistency of response and allow calculation of an average, expected response.
- What percent of the industry is using the products (repeated business)? Significant use by leading companies, nutritionists and producers, means confidence and repeatedly positive animal performance benefits.

## Research

---

- Peer-review publication of the research is best. It shouldn't be just an abstract presented at a meeting, published in the mineral company's own symposium proceedings, or as a popular press article in a magazine. A comprehensive trial report is second best. For example, a Technical Bulletin may be used that is complete with trial design, materials and methods, diet information, data tables, statistical analysis, etc.
- Leading universities or independent research institutions should conduct research projects. Field observations and testimonials from other producers reported as scientific evidence are not acceptable.
- All statistical analysis, materials and methods, and diet information should be divulged. This prevents numerical differences in poorly designed experiments from being interpreted as valid effects.
- The experimental design must be valid and follow good scientific principles, such as:
  - Must be conducted on the target species (not only laboratory, bench-top experiments).
  - Experiments should not compare this month versus last month, use only 2 or 10 animals in an experiment, or supplement deficient or marginally deficient animals to induce a response.
  - Collective body of research should demonstrate that the actual source of mineral improves performance, not merely adding more total mineral supplementation.
  - Commercially relevant production levels should be used (not poor performing animals to compare against). Control animals should be in upper (best) 50% of industry average for production parameters.

F criteria based on five categories to  
ce mineral.

# 5-Rs

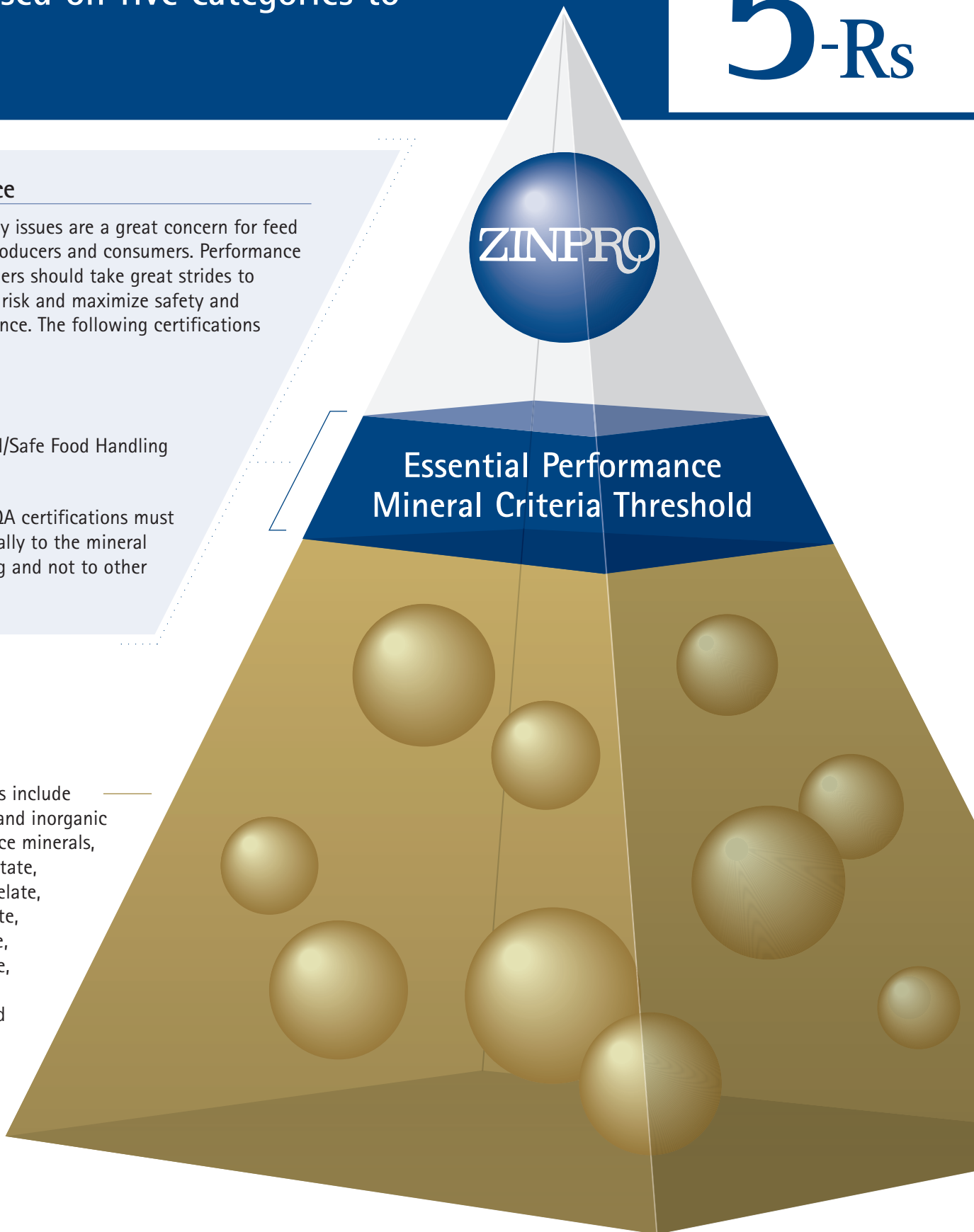
## Reassurance

Risk and safety issues are a great concern for feed companies, producers and consumers. Performance mineral suppliers should take great strides to minimize this risk and maximize safety and quality assurance. The following certifications are required:

- ✓ ISO
- ✓ FCI
- ✓ Safe Feed/Safe Food Handling

NOTE: These QA certifications must apply specifically to the mineral manufacturing and not to other products.

Other minerals include both organic and inorganic sources of trace minerals, including: acetate, carbonate, chelate, chloride, citrate, formate, oxide, polysaccharide, propionate, proteinate and sulfate forms of minerals.



## Other Performance Minerals

Two other standard minerals may occasionally be classified as Performance Minerals. When fed at very high, pharmacological levels, zinc oxide and copper sulfate may meet the five essential criteria. This is most commonly observed in young pig (and some poultry) diets.

Performance Minerals™ is a registered trademark of Zinpro Corp.  
©2005 Zinpro Corp. All rights reserved. ZPM-G-1100

