



# Zoetis i50K v HD50K

## What's the difference?

### What is the Difference between the i50K and HD50K Products?

The Zoetis i50K for Angus (i50K) product is a lower density, lower cost version of the Zoetis HD50K for Angus (HD50K) product, but with comparable accuracy.

The i50K product uses a low density DNA test to assess the genetic makeup of black Angus cattle and obtain a low density genetic profile for an animal.

A process known as imputation is then used to predict the high density genetic profile for the animal, which is equivalent to the genetic profile that would have been obtained if the animal was tested with the higher density, higher cost HD50K product.

### What is Imputation?

Imputation is a process that uses pattern recognition to predict a higher density genetic profile from a lower density genetic profile.

The process of imputation is similar to a human's ability to read words, sentences or even paragraphs that have letters missing. Here's an example of a sentence like this. Due to your experience reading over the course of your life, you're able to fill in the blanks that exist even though the letters aren't really there.

Imputation works much the same way. Based on a large population of animals that have been genotyped with both low and high density DNA tests, a computer algorithm can fill in the parts that are missing from the low density genotype.

#### Understanding the Imputation Process

Imputation uses pattern recognition to fill in missing data points, the same concept that allows humans to easily read sentences when several letters are missing.

### How Accurate is Imputation?

Research conducted by Zoetis has demonstrated that the average imputation accuracy for i50K genetic profile in Australian Angus cattle is greater than 98%. This means that more than 98% of the single



nucleotide polymorphisms (known as SNPs) imputed from an i50K genetic profile match the true HD50K genetic profile.

### Are There Any Other Differences Between the i50K and HD50K Products?

Other than the imputation process that the i50K product uses to calculate the high density genetic profile, the i50K and HD50K products are identical.

### Are Genomic Predictions Calculated for the Same Traits?

The i50K calculates genomic predictions for the same suite of 22 traits as the HD50K.

### Is the Same Information Included in Angus BREEDPLAN?

Genomic predictions from the i50K product are incorporated into BREEDPLAN in exactly the same manner as to the genomic predictions from the HD50K product.

Specifically, genomic predictions are incorporated in Angus BREEDPLAN for the same 14 traits, and BREEDPLAN places the same emphasis on the i50K and HD50K genomic predictions when calculating the EBVs for an animal.

### Is the Process to Test an Animal with the i50K Product Different?

The process for testing an Angus animal with the Zoetis i50K for Angus product is exactly the same as for the Zoetis HD50K for Angus product.

### Is the Cost of the i50K Product the same as the HD50K Product?

No. As the i50K product uses a lower density DNA test, it is available at a lower price.

Product	Cost (inc GST)
HD50K	\$91.00 (1-5 animals) \$80.50 (6+ animals)
i50K	\$64.68

Note: Angus Australia also charges a processing fee of \$6.60 per animal (1-50 animals), \$5.50 per animal (51-100 animals) or \$4.40 per animal (101+ animals) for both the i50K and HD50K products.

### Will the HD50K Product Still Be Available?

Animals can still be tested with the HD50K product but in most cases, the i50K is adequate for the inclusion of genomic information into Angus BREEDPLAN.

The Zoetis HD50K would only be considered if it was deemed advantageous to store a high density DNA profile for inclusion in future research, or to assist the research efforts of genotyping companies.

### Is the i50K Product Suitable for Red Angus, or Animals on Multibreed Register

As with the HD50K product, only black Angus animals should be considered for testing with the Zoetis i50K product. The accuracy of the i50K genomic predictions for Red Angus animals, or animals recorded on the Multibreed Register is unknown.

### Further Information

To further discuss the Zoetis i50K for Angus product, please contact either Angus Australia's Breed Development & Innovation Manager, Carel Teseling on (02) 6773 4602 or [carel@angusaustralia.com.au](mailto:carel@angusaustralia.com.au), or Angus Australia's Education, Extension & Youth Manager, Andrew Byrne on (02) 6773 4618 or [andrew@angusaustralia.com.au](mailto:andrew@angusaustralia.com.au).

Information is also available by contacting staff at Zoetis.

Zoetis i50K for Angus offers a low density, low cost version of the Zoetis HD50K for Angus product. Other than the imputation process that is used to generate the high density genetic profile for an animal, the i50K & HD50K products are identical

