KPM
WE CRAFT ASSURANCE

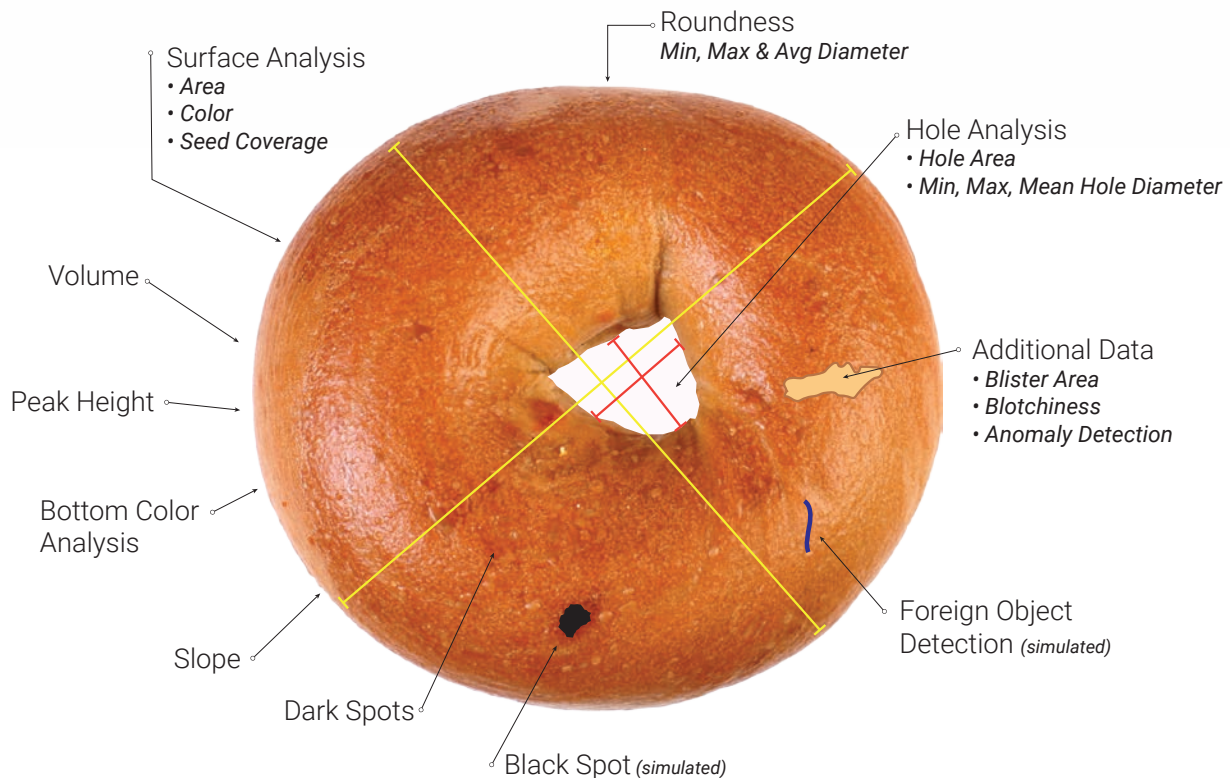# Bagels

The manufacture of baked goods provides many challenges since there are a multitude of input variables that can affect product quality. The ability to continuously monitor key product attributes using real-time inspection software (e.g. bake color, peak height, slopes, blister area, etc.) in a quantifiable way, based on user-defined specification limits, provides the opportunity to respond to changes faster and more effectively.

Surface Analysis
- *Area*
- *Color*
- *Seed Coverage*

Roundness
Min, Max & Avg Diameter

Hole Analysis
- *Hole Area*
- *Min, Max, Mean Hole Diameter*

Volume

Additional Data
- *Blister Area*
- *Blotchiness*
- *Anomaly Detection*

Peak Height

Bottom Color Analysis

Foreign Object Detection *(simulated)*

Slope

Dark Spots

Black Spot *(simulated)*

HEIGHT 3D ANALYSIS

Peak Height	The highest point on the object when resting on a flat surface; calculated by taking the average of the 'N' highest height points measured on the top surface (N is user-configurable).
Slope	The curvature of the top surface on the product; measured by calculating the vertical change between the center and auser-defined ring near the edge of the product.
Volume	The volume of an object based on height and area data; can be used with density to calculate 'predicted weight.'

SIGHTLINE
a KPM brand

EyePro System
a KPM brand

KPM Inspection Product Brands
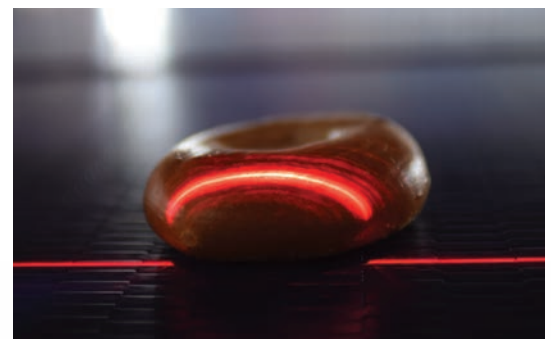
Virtually any food product can be measured using KPM Vision Inspection imaging technology, either directly during the production process (Over-Line/In-Line) or using a Benchtop Inspection System (Off-Line).

Below are some of the measurements available, particularly related to cooked bagels.

OVERHEAD 2D ANALYSIS

|	
Surface Area	The overall area of the object. Used to find doubles and small products.
Blister Area	The area of any dark spots (i.e. blisters) on the top surface.
Botchy Area	The area of any white/blotchy regions (i.e. blotchiness) on the top surface.
Product Color	The average color of the product with all topping (if applicable) ignored for the calculation.
Min/Max Diameter	The minimum and maximum diameters of the object as measured through the center of the object.
Topping Coverage Percentage	For topped product, the percentage of the top surface covered by topping (light, dark, or both).
Average Diameter	The average of 180 diameters of the object as measured every one degree through the center of the object.
Center Length	The length of the object as measured down the center of the long axis.
Center Width	The width of the object as measured down the center of the short axis, perpendicular to the length measurement.
'Kissed' Bagel	Kissed bagels can be identified by the width of the join. Optionally they can be re-circulated and separated (In-Line systems only).
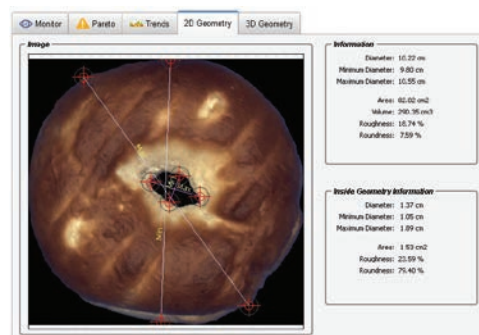
Sample of 2D data
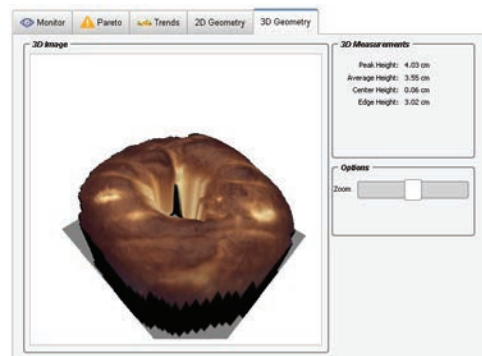
Sample of 3D data

BOTTOM SURFACE ANALYSIS

Bottom Color	The average color of the bottom of the product.
Black Spots	The surface area of the dark/black regions on the bottom of the product.
Excessive Cornmeal	The surface area of the cornmeal regions on the bottom of the product.
White Edges	The surface area of the under-baked edges on the outer ring of the bottom of the product.
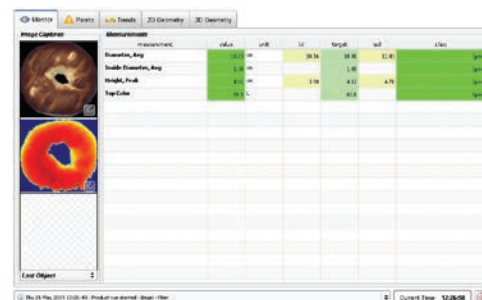
Customizable 'Monitor' page showing summary data