Berry Drops – Team First

MCEN4151 – 3/7/18

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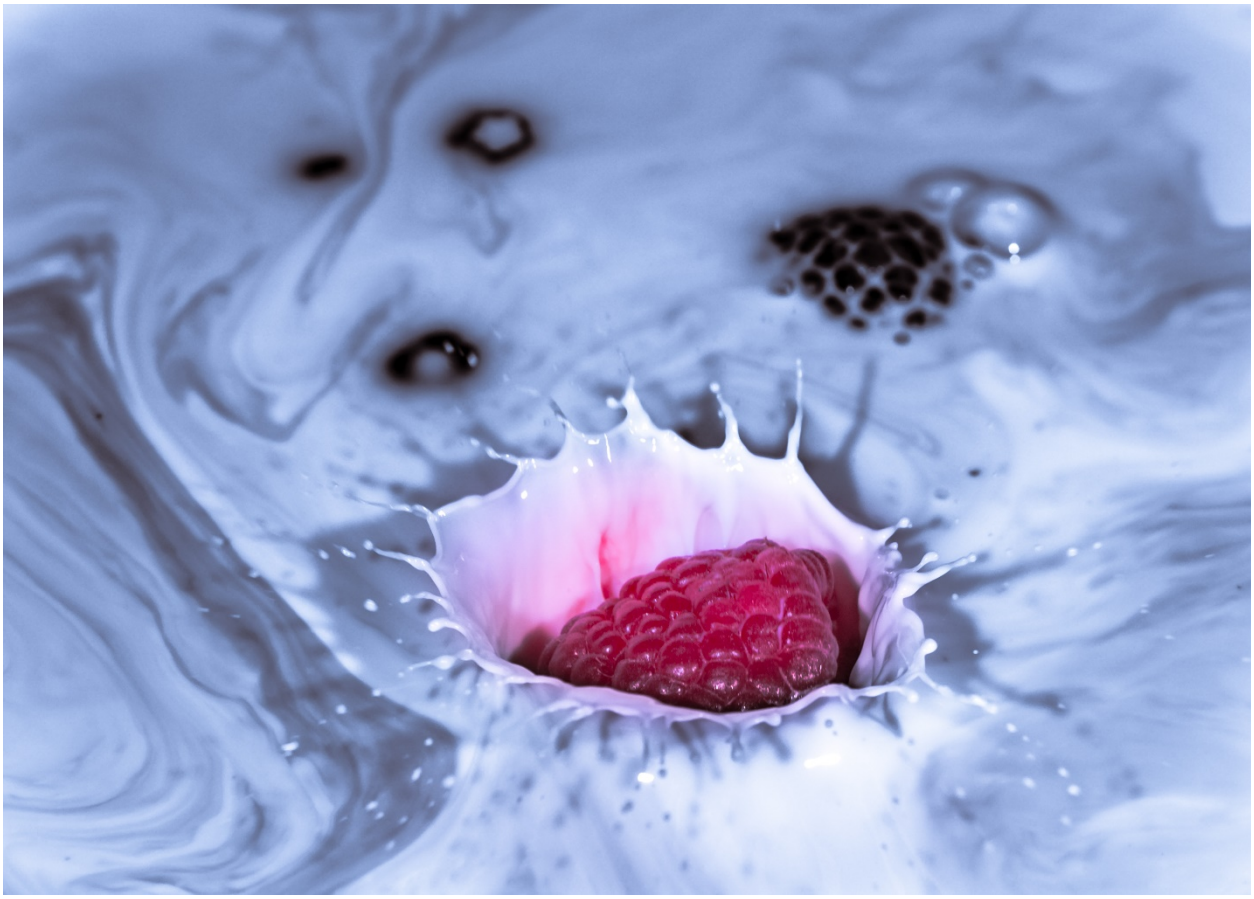
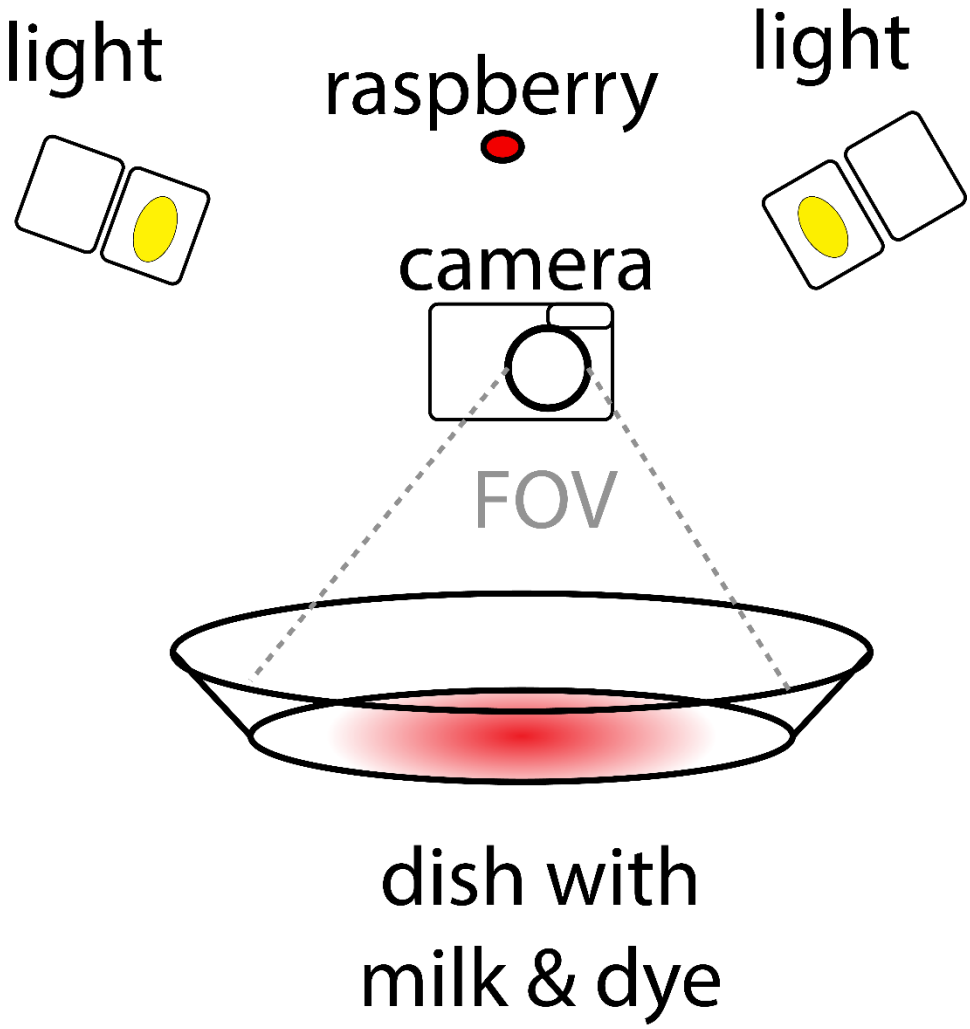


The purpose of this image was to capture the corona splash caused by dropping a berry into a thin film of milk. Both blueberries and raspberries were used, and the final image chose was a raspberry corona. At first I tried this in a deeper body of milk but the effect was far from desirable. I found that there needed to be a balance of liquid depth to achieve the desired effect. Too deep and the berry would disappear and the splash was not dramatic, too shallow and the glass dish holding the milk would be easily seen. I found the sweet spot and proceeded to drop berries and take pictures.

To capture this image, a glass pie dish was used to hold a shallow film of milk. Berries were used to create splashes in this milk. The berries were dropped from about .4 meters above the surface of the milk. Assuming normal gravity conditions the berry's velocity was approximately 10 km/h on impact. The raspberry weighed 5 grams and thus generated an impact force of .02 Joules. A small force for a small splash. Cold whole milk was used, but after some time under the hot halogen lights the temperature rose to a smelly few degrees above room temperature. The viscosity of the milk will be lower than at a colder temperature. (Bakshi, A.S., Smith, 1984)This means the corona produced has more of a droplet flavor compared to the smooth ring produced from a higher viscosity fluid like whipping cream.(Joeseph

Stall, n.d.) In other words more droplets have separated from the corona ring and sprayed out a greater distance. This is because the intermolecular forces that keep the fluid particles together are less with lower viscosity.



The main players in this image were berries and milk. For a little added spice a few drops of red food coloring were also used. The milk was 1 cm deep and the glass dish was 10” in diameter. The raspberry was large and weighed approximately 5 grams. The berry was dropped on its side into the partially stirred dye.

Two bright halogen lights were used to allow for a fast shutter speed. I used a Sony alpha 5100 with a 50mm 1.8 lens shooting at 1/4000. Even two bright lights were not quite bright enough to shoot at the optimal iso and aperture. The final image was captured using an iso of 320 at 4.5 aperture. The result was certainly sufficient, but an iso of 100 at 5.6 or 6.3 would have been ideal. The berry was dropped 15” away from the lens, 3” further than minimum focal distance. The image was captured in raw format and post processing was done in Adobe Lightroom. The contrast was increased on the whole picture. A mask was used to decrease saturation in the whole image except for the berry and splash. This showed

the red dye just in the splash which made it look like the red raspberry had bled out into the milk. Sharpness was also increased around the berry as there was still a slight motion blur at full zoom. The image was cropped slightly to highlight the berry and remove the sides of the dish.

I liked how this image turned out. The uneven surface of the raspberry shows in the splash pattern that it made. The inside of the corona has creases that show the high bulges and low valleys of the berry on impact. The desired corona is fully visible and the added effect with the dye makes it even more interesting. The bubbles next to the berry in the background is the one thing I would change. Overall I am happy with the image. It captures my vision well and came out better than I expected. A photogate would have been very useful for timing and a flash would have also helped the image results. Both of which were incompatible with my camera.

Bakshi, A.S., Smith, D. E. (1984). Effect of Fat Content and Temperature on Viscosity in Relation to Pumping Requirements of Fluid Milk Products.

Joeseph Stall. (n.d.). Milk Viscosity. *Dairy Science*. Retrieved from https://www.microscopy-uk.org.uk/mag/artnov14macro/JosephSall_MilkViscosity.pdf