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Pack Expo Summary

On Sunday, October 14, 2018, I visited the PACK Expo in Chicago, Illinois to investigate how the vendors and exhibitors would recommend spray drying Greek yogurt and packaging the resulting powder. In total, I talked to ten companies, five of which gave me adivce on the spray drying process, four of which gave me advice on packaging powdered yogurt, and two of which were able to give me tips on the general production of yogurt.

I began by talking to Adrian at GEA. He discussed his knowledge of fermentation of yogurt with me before introducing me to his company's yogurt experts, Wim and Paul. They gave me good advice about the considerations and decisions I would need to make before selecting my spray-drying equipment. Adrian then gave me an overview of his company's yogurt production process from fermentation to packaging as well as other dairy production lines which included the spray drying process. Before leaving his booth, he scanned my badge to send me more information later and took a photograph with me (Figure 1).

I next visited the Paxioim Group and talked to Josh Fox. He told me about his company's packaging machinery and recommended that for powdered yogurt, I should look into using a screw conveyor to move the powder to a Star Auger filler to fill pillow bags (which would be like single-serve hot chocolage pouches). A Vertek bagging machine would be used to finish the filling process and then a DropPack machine would box the pouches for distribution.

Barry-Wehmiller Company gave me information about their premium packaging options using a vertical fill form machine for powders. The machine can fill four different bag geometries and sizes depending on if I wanted the yogurt to be in single-serve pouches (again, like the hot chocolage pouches) or larger multi-serving bags or cannisters (like granola or coffee grounds), one of which I was given a sample of (large quad seal with zipper). I also received a product booklet to investigate more options.

Figure 1: Adrian from GEA (left) showing myself (right) and my groupmate Barbara McAnulty (middle) his recommendations for equipment for the yogurt production and packaging process.

At CRB, I talked to Jason Robertson, a University of Iowa graduate, who gave my contact information to Pablo Coronel, the company's expert in spray drying. I have not yet received an email from them, but I am keeping an eye out and am excited to hear their advice.

Daniel Luna discussed TNA's drying process with us and shared information about their snack processing. I received pamphlets about their processes, although they did not do spray drying specifically.

Next at Yaskawa, David talked to me about his company's automation of packaging process. He showed small-scale robots which would load my packaged powdered yogurt into boxes, put the boxes on pallettes, and would then prepare the pallettes for shipment.

Clextral's representative discussed a new drying process with me that they had created. It is 30-40% more efficient than spray drying and uses extrusion and gas injection to create bubbles in the product and then places the product into a dry chamber. The bubbles allow the product to better preserve the flavor of the product than other methods of drying. The representative pointed me to videos on YouTube to better visualize the process.

At Statco-DSI, I talked to Dave Boyd, who started working with Chobani when they were just starting up. He was very helpful in giving me advice on what I need to consider for the overall yogurt process based on the size of my operation and the differences that are more efficient for a pilot plant versus a full industrial scale operation.

Tom from Black Forest gave me information about fermentation jackets and equipment to help my groupmates. Tom went to Purdue in 1996 and studied under Dr. Nelson in Food Science before starting Black Forest and selling fermentation jackets to Dr. Nelson.

Finally, John Phelps from AC Compacting LLC was very helpful for giving me advice on the spray drying process, specifically for yogurt. He recommended lots of literature on the subject as well as considerations with respect to viscosity, temperature, pH, spray nozzle type, particle size distribution, particle recovery and how those factors affect the final product. Yesterday he sent me an email with quotes for the different spray drying machines his company offers and his recommendations for my project. This conversation was a great way to end PACK Expo.