**Ice Cream Demo Script**

Erika: Good evening honorable judges, fellow FFA members and guests, my name is Erika Garant and my partners are Ben Ankley and Heather Wise (possibly have everyone introduce themselves). Tonight our demonstration is entitled Ice Cream Production, From Cow to Cone. Mr/mdm timekeeper we are now ready to begin.

Ben: Hello, and welcome to our tour of our ice cream processing plant. We are employees at From Cow to Cone, Michigan’s premier ice cream manufacturer. Today we will show you how we make ice cream here in large amounts for everyday people such as you and I to enjoy.

Erika: Imagine it’s a hot summer day in the park and you are longing for something cold and satisfying.

What do you think of first…a cold refreshing pop, a glass of ice cold water, or perhaps a heaping scoop of ice cream? At from Cow to Cone we hope you decide on a heaping scoop of ice cream.

Heather:Did you know that ice cream was originally invented in china around 2000 BC, which was later brought to Venice, Italy by Marco Polo where it was called “cream ice,” after being brought to America it was renamed “ice cream” by our own first lady Dolly Madison for white house functions.

Ben: The production of ice cream starts when we get milk here at From Cow to Cone from a co-op where the dairy farmers send their milk. At the co-op, the milk is separated into heavy cream and condensed skim milk, then shipped by tanker trucks to our factory here.

 When the milk arrives at the factory they are stored in storage silos where it is stored at 36° F.

Our first stop of the tour today is at the blender. Here we blend the dry and liquid ingredients together.

The ingredients that we use are; milk fats which include creams or butters. Milk solids which are concentrated whole milk. Sweeteners; dry or liquid high fructose corn syrup, Carrageen, which is used as a stabilizer, and lastly emulsifiers where we use eggs and one of the most important ingredients, sugar.

(Who will be deomonstrating this? Someone should be showing it to the audience and then add it to the blender)

When the mixture is done blending it should look like this. (who is holding it up?)

Erika: Next stop on our tour is at the Continuous Plate Pasteurizer.

After the dry and liquid materials are blended together to make the mixture they are sent here.

Pasteurization is used to destroy any material that may be harmful to human health, which are also known as pathogens. Pathogens can be bacteria, viruses, or even fungi. The milk is already pasteurized when it comes to the ice cream plant, but because there are ingredients added to the milk it is required to pasteurize the milk mixture again.

A common machine used is the continuous plate pasteurizer, (who is showing this?) which is what we have here. This pasteurizer works by running the mixture through pipes in a waved pattern. These pipes are surrounded by other pipes, in the same wave pattern, that carry either hot or cold water. The pasteurization process starts by cooling the liquid mix down to 33° F.

Secondly, the mix is quickly heated up to the HTST or the high temperature, short time, which on average is around 175° Ffor 25 seconds. Lastly, the mixture is cooled down again to 33° F.

Heather: If you come over this way we will show you how ice cream is homogenized. (who is showing?)

Homogenization is used to reduce the size of fat globules by 1/10 of their regular size and increase surface area by 100. This machine works by putting the mixture under intense pressure in two steps. This is called a two stage high pressure homogenizer. It works by putting the mix into the homogenization valve which slowly gets smaller and smaller, similar to a funnel. As the mixture reaches the smallest point of the valve there is a condition of turbulence and shear created. From these conditions the fat particles are disintegrated and dispersed into the mixture evenly.

Ben: After the mixture has been through homogenization it is then sent to an insulated storage tank for the aging process.

Here it is stored for 4 hours or overnight which allows time for fats to cool down and to crystallize. The purpose of this is to give better whipping qualities for the mix, body, and texture. While the ice cream is aged in the storage tanks, flavors such as vanilla, chocolate or fruit extracts are added into the mixture. Flavors aren’t the only thing added to the mix in the tanks, colors and dyes are also added. Today we are making cookies and cream ice cream so this is where we add the vanilla flavoring to the mix. Here we can also add chocolate or strawberry flavorings. For example, if we make strawberry flavored ice cream we add strawberry flavoring. If we are making a cake batter ice cream we add a different flavoring.

Erika: After the aging process the mixture is then sent through a dynamic freezer.

Here the water in the mixture becomes frozen in 30 seconds. It has rotating blades inside the barrel to helpkeep the ice scrapped off the surface. There are also dashers inside of the barrel help to incorporate air. (hold up and show examples of each… who is doing this?)

When air is incorporated into to the mixture it is called overrun. Overrun is the volume of ice cream mixture compared to the amount of air that is incorporated. The lower the amount of air incorporated means that the ice cream is of higher quality or low overrun, higher amounts of air incorporated means that the ice cream is of lower quality and cheaper to produce. Standard brands have an overrun of 100-120% and example of these types of ice creams are the store brands, like Kroger or Wal-mart. Premium Brands have 60-90% overrun, and an example would be Breyer’s ice cream. Super premium brands have an overrun of 25-50% and examples of these would be Haagen Daaz and Ben and Jerry’s brands of ice cream. Ice creams with lower overrun tend to melt more quickly than ice cream with a higher overrun.

Here at From Cow to Cone our ice cream is a Premium brand and our ice cream contains 70% overrun.

When the ice cream is softly frozen, the particle feeder breaks up nuts, candies, and cookies and feeds them into the Dynamic Freezer, where they are mixed in with the semi-frozen liquid. Since we are making Cookies and Cream ice cream today, this is where the cookies are added to create our product. (Who is showing this?) (Maybe mention something about them having to be crushed… you don’t add whole oreo cookies)

Heather: Ice cream can come in different textures such as soft serve, sherbert or sorbet. Soft serve ice cream tends to usually have a milk fat content of 3-6% compared to regular ice cream which is usually 10-18%. It is also stored at 25˚ F compared to regular ice cream at 5˚ F. A soft serve ice cream machine is similar to a mini dynamic freezer. The reason it is so light is because it doesn’t freeze as long as regular ice cream.

 Sorbet is a frozen dessert made from sweetened water flavored with fruit which is typically juice or puree, wine, and/or liqueur.

 Sherbert is…

Ben: With the particles now put into the mixture we are now ready to package the ice cream. So let’s head over to the filing heads.

At the filling heads the ice cream is dispensed into cartons or buckets of all sizes such as gallons, quarts, or pints. Today we are putting our cookies and cream ice cream in …

Erika: Did you know that it takes 12 pounds of milk to make just one gallon of ice cream? Also, California is the top producer of ice cream in the United States.

Heather:To increase shelf life of the ice cream is sent through a freezer where it is cooled down to less than -13˚ F as quickly as possible to create ice crystals in the ice cream. It is then sent up a spiral conveyor. (Are you going to show this? If not, you probably don’t have to say this) In this process the temperature stays below -13 degrees F. When this process has finished the ice cream is ready to ship out and sell to the consumers all over the United States.

 But before it is shipped out it has to go through quality control, one of the best jobs here at the plant. It is also known as the taste tester. Explain more. How much do they taste from each batch?

This concludes the tour of our large scale ice cream processing plant. We hope you enjoyed seeing the process of creating our famous cookies and cream ice cream.

Thank you for joining us on the tour of our From Cow to Cone ice cream processing plant. Remember the next time your looking for a summer treat or at your local grocery store buying ice cream, look for our From Cow to Cone premium ice cream.

Mr. /Mdm timekeeper this concludes our presentation. Our rescources are included on our powerpoint

We will now entertain any questions the judges may have.