



From ABS to the Farm...

Safely Providing a Healthy Product

The Distribution Component of the ABS Production Equation

At ABS, we pride ourselves in producing and providing the highest quality and most consistent product in the industry. The key to achieving this goal is multi-faceted and pertains to following strict protocols from start to finish. This article is fourth and final in a series that will discuss the ABS production process and describe how ABS brings top of the line products to producers. The topic of the first article focused on ABS sires and the barn staff that work with them daily, the second detailed the work done in the laboratory to ensure that the highest quality semen is provided to producers and the third described the ABS Sexation[®] semen sorting process.

This article will describe the process that takes place in the Walton Distribution Center—a 26,000 square foot facility named after Bob Walton for his contributions to ABS. The Walton Distribution Center houses five million units of dairy and beef semen and consists of ten experienced staff members who manage the inventory of units stored and shipped to over 70 countries around the globe.

Security

After being frozen in the laboratory utilizing ABS wind tunnel technology, units are placed in a holding tank and then spread among the 86 XLC 1830 tanks located in the Distribution Center. Each tank holds approximately 67,000 $\frac{1}{4}$ and $\frac{1}{2}$ cc units and stores them in liquid nitrogen at -320°F or 196°C . It is imperative that these tanks are kept at this temperature to prevent damage to the units (see chart 1 & 2 on page 3). These units are randomly assigned to different tanks to ensure availability in case of a tank failure—no one sire or collection is placed in the same tank.

Units are also segregated based on qualifications to meet health and export requirements. ABS bulls are tested for the following diseases: Tuberculosis, Brucellosis, Campylobacter, Tricomoniasis, Leptospirosis, John's Disease, Leukosis, IBR, Blue Tongue and EHD. Based on these results, units are separated in order to meet the health requirements for different countries including the European Union, Australia and New Zealand. In addition, ABS produced units are separated from any other custom collection units.

Every sire collected at ABS Global also has a genetic reserve of semen at



the Distribution Center. These units are separated from the saleable units and will remain at the ABS Distribution Center.

Employee Safety

Within the Distribution Center, there is an extensive heating and air conditioning unit that monitors the temperature and humidity level of the building. This system maintains a temperature of 67°F within the building. Because of the nitrogen gas (N₂) expelled from liquid nitrogen, excellent ventilation is critical, so oxygen (O₂) levels are observed and kept at 19.5% or higher for the safety of the staff.

One of the most important parts of the distribution process is the people who make it all happen—the Walton Distribution Center team. As liquid nitrogen is a hazardous material, ABS strives to ensure all Employees safety when working with this substance. The ten staff who work in the Walton Distribution Center have all completed training in order to handle liquid nitrogen and follow strict procedures

Shipping

The Walton Distribution Center annually ships 12 million units of dairy and beef semen to over 70 countries around the world. Their busiest months include April, May and June due to a heavy amount of beef semen shipped during these months. On March 31,



everyday. Wool gloves and safety goggles are always worn when working in the facility in case of splashing or direct contact with liquid nitrogen.

Tank Maintenance

Each tank is monitored and the level of liquid nitrogen is checked weekly. As liquid nitrogen does evaporate back to what it originated over time, each of the 86 tanks in the Walton Distribution Center is topped off every Friday. This process is accomplished by a series of Vacuum Jacketed (VJ) Pipes that pump liquid nitrogen into each of the tanks. These special pipes help ensure a limited amount of liquid nitrogen lost by using a low vacuum pressure to ensure optimal thermal efficiency. A total of 9,000 gallons of liquid nitrogen are used a week. It is delivered by a semi and pumped it into a silo located beside the Distribution Center.

Managing Inventory

Inventory counts are needed to verify that the correct number of available units are recorded. These counts are completed by the Distribution staff annually. It is a time consuming, but necessary process as it takes two people one hour to count each tank. The Distribution staff highly values these counts and currently holds a high accuracy rate of 99.94%.

Picking

The Distribution team works to fill orders Monday-Friday from 7 am-4:30 pm. In the morning, the team picks and packs orders that were received after 11 am the previous day. In the afternoon, they work on orders placed that morning before 11 am. Units are gathered by utilizing a “wave pick”, which means product is chosen by the computer based on the First In First Out (FIFO) System.

2008, the ABS Distribution set a new single-day record shipping 121 tanks containing 72,204 units of beef semen.

ABS possesses approximately 400 vapor shippers that will be used to ship domestic orders. Before getting packed with an order, each dewar is filled with liquid nitrogen for a minimum of 24 hours to cool it. Once fully charged, the liquid nitrogen is dumped out, and the unit is packed and shipped. Upon return, a shipper cell must undergo the same process before being used to fill the next order.

Utilizing three ABS semi route trucks and UPS, ABS sends shipments to Representatives, Distributors and Affiliates around the world.

Putting it all Together

This series of articles discussed the semen production process from the acquisition and health of sires to the production and evaluation of conventional and ABS Sexation product to the distribution and shipping of semen around the world. The ABS commitment to providing cattle producers a healthy, high quality product, is evidenced by the stringent procedures followed by Employees who are involved with this process. ■



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SEMEN TEMPERATURE DURING HANDLING AND STORAGE

