Correct semen handling techniques are important in achieving maximum fertility when using ABS Sexation semen—this has been a key to success since the first units were inseminated over three years ago. As a function of production and packaging of sex sorted semen, the concentration of sperm cells per straw is significantly lower than conventional semen. ABS Sexation concentration at packaging is 2.1 million cells, and on average at thaw there are roughly 1 million motile sperm cells.

Research has shown that sperm numbers account for a portion of fertility. This relationship between pregnancy check results and the number of live, progressively motile cells post thaw is found in chart 1.

While based on conventional semen, this fertility curve can be easily applied to ABS Sexation semen by examining the 1 million motile sperm level.

ABS has identified two points in the insemination process that when completed effectively, can help preserve and maximize the number of progressively motile sperm. These points include time and temperature post-thaw.
After thawing at the recommended 95-98°F (35-37°C) and holding a consistent temperature post-thaw, the number of progressively motile sperm cells declines with time. In other words, as semen “ages” after thawing, the total number of live, progressively motile sperm cells decrease significantly as shown in table 1.

<table>
<thead>
<tr>
<th>Pack-rate</th>
<th>Number of Progressively Motile Sperm - Sex Sorted Semen</th>
<th>Post-thaw</th>
<th>15 Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 M</td>
<td>0.97 M</td>
<td>0.68 M</td>
<td></td>
</tr>
</tbody>
</table>

Table 1

In addition to degradation with time, temperature can also have a large affect on progressive motility post-thaw. Heat shock (represented by 108° F) and cold shock (represented by 40° F), can create rapid decline in progressively motile sperm cells as demonstrated in chart 2.

Further supporting these data, at the recommendation of the ABS Technical Services team, a large commercial dairy in the U.S. changed ABS Sexation semen handling practices by reducing the number of units thawed at one time, results highlighted in chart 3. The change in handling went into place early February 2009, and no additional management practices were changed during this time. The conception rate on nearly 1,800 total inseminations increased from 33% to 42% when the technician reduced the number of straws thawed at one time. This technique change reduced the time between thawing to units placed into the reproductive tract.

In order to preserve the number of progressively motile sperm post-thaw, ABS is emphasizing two additional handling techniques in order to maximize fertility results. They include:

- **Place into the animal as quickly as possible, within 5 minutes**
- **Protect from heat and cold shock post-thaw in order to maintain the highest percentage of progressively motile sperm cells per straw.**