INDICATIONS
For increasing the percentage of heifer calves in dairy and beef cattle.

DOSEAGE
HEIFERPLUS-20 contains 20 units of HEIFERPLUS. One unit of HEIFERPLUS will treat 0.25 ml of extended semen.

- Total extension volume = 5.5 ml of extended semen.
- Recommended dosage = 1 unit per 0.25 ml of extended semen (2 units per 0.50 ml).
- Recommended sperm titer = 20 million live sperm/straw (pre-freeze).

NOTICE
This is not a restricted drug. HEIFERPLUS is a non-prescription biopharmaceutical agent. Federal law does not require that this product be used by or on the order of a licensed veterinarian. Please check with local regulations.

DESCRIPTION
HEIFERPLUS is spermagenic agent for sexing bull semen. Packaged in kit form, each vial is lyophilized and sealed to maintain potency during storage. The agent is activated when extender is added to the HEIFERPLUS vial.

MODE OF ACTION
HEIFERPLUS works by enhancing the fertility of the X-chromosome bearing (female) sperm while reducing the fertility of the Y-chromosome bearing (male) sperm. When inseminated close to the time of ovulation, more ova are fertilized by the X-chromosome bearing (female) sperm. The heifer sex ratio of calves is increased by 20-30% (Average 75%).

MIXING INSTRUCTIONS
Please select one of the following methods for extension, addition and incubation of HEIFERPLUS which is best suited for your application.

FRESH SEMEN
- After collection of semen, determine semen parameters.
- Dilute the appropriate volume of raw semen using a standard bovine semen extender to a final volume of 5.5 ml. Recommended extension rate: 20-40 million sperm/dose.
- Equilibrate both the extended semen and the HEIFERPLUS-20 vial to 38°C (100.4°F) for 5-10 minutes.
- Add 5.5 ml of warm extended semen directly to the HEIFERPLUS-20 vial. Reseal the vial and gently mix.
- Incubate for 10 minutes at 37-38°C (99-100°F).
- Load straws as usual and use immediately. See Table 1.
- Sexed semen can be cooled and stored at 5°C according to standard procedures. Use within 24 hrs.

RECOMMENDED SEMEN EXTENSION
- 0.25 ml straws: 20 straws x 20 million live sperm/straw (pre-freeze) / 20 straws x 0.25 ml/straw = 400 million live sperm/5 ml of extended semen = 80 million live sperm/ml.
- 0.50 ml straws: 10 straws x 20 million live sperm/straw (pre-freeze) / 10 straws x 0.50 ml/straw = 200 million live sperm/5 ml of extended semen = 40 million live sperm/ml.

THAWING OF TREATED SEMEN
- Thaw semen at 95-98.6°F (35-37°C) in a water bath for 45 seconds. Inseminate as usual.

TIMING OF INSEMINATION
Best results are achieved with HEIFERPLUS when inseminated 16 hours or later following onset of standing estrus (closer to ovulation). Please see the following guidelines. *Rule of Thumb*: Add 4-6 hrs to normal AI times.

- NATURAL OR SYNCHRONIZED HEATS: Use frequent heat detection (2-6 times/day) when using this product. Inseminate 16 hrs after onset of first standing heat.
- TIMED BREEDING USING OVSYNCH®: Breed heifers 24 hrs after the final GnRH injection.
- EMBRYO TRANSFER: 2X insemination protocol: Inseminate at 16 hrs and 24 hrs following onset of first standing heat. 1X insemination protocol: Breed 18 hrs after onset of first standing heat. DO NOT BREED AT ONSET OF HEAT!
- TIMED-BREEDING USING PROGESTINS (CIDR/CRESTOR): Breed 66-72 hrs after removal of CIDR/Crestor implant.

STORAGE CONDITIONS
Keep desiccated in freezer (-20°C (-4°F)). Avoid moisture and keep in the dark.

HOW SUPPLIED
HEIFERPLUS multi-unit is lyophilized in the following package sizes: 20, 50, 100 and 200 unit vials.

WARNINGS
KEEP OUT OF REACH OF CHILDREN.

Mtg by: EMLAB GENETICS, LLC Arcola, IL 61910 USA Ph: 708-442-3964 www.emlabgenetics.com

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Table 1

<table>
<thead>
<tr>
<th>Straw volume (ml)</th>
<th>No. of straws</th>
<th>Volume of HEIFERPLUS-20</th>
<th>Volume of Extended semen</th>
<th>HP+ Enhanced SEMEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>20</td>
<td>1.50 ml</td>
<td>4.0 ml</td>
<td>5.5 ml</td>
</tr>
<tr>
<td>0.50</td>
<td>10</td>
<td>1.50 ml</td>
<td>4.0 ml</td>
<td>5.5 ml</td>
</tr>
</tbody>
</table>

*Final concentration of 20 x 10⁶ live sperm/straw (pre-freeze)*
* Dilution ratio = 1 unit of HEIFERPLUS: 0.25 ml of extended semen