



Bovine semen sexing agent - Female

PRODUCT: HEIFERPLUS-20 PRODUCT #: HP20 DOSAGE: 20 UNITS

INDICATIONS

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

DOSAGE

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 live 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.

METHOD 1: COOL ADDITION using 1-STEP CSS Protocol

- Following Standard CSS 1-step Protocol, prepare and warm bull semen extender (7% glycerol) to 28-32°C. One-step TRIS-CITRATE based extenders are recommended.
- Extend semen by slow addition of warm extender to 80% final volume and allow to equilibrate to 28-32°C (82-90°F). See recommended extension rates.
- Cool extended semen to 5°C (42°F) over a period of 2 hours and allow to equilibrate for at least 4 hours prior to freezing.
- Towards the end of the equilibration, re-hydrate the HEIFERPLUS-20 vial with 1.5 ml of cooled extender (5°C, 42°F). Use immediately. See Table 1.
- At 5°C (42°F), slowly add HEIFERPLUS to the extended semen. This will bring the extension to 100% final volume. Gently mix. See Table 1.
- Equilibrate at 5°C (42°F) for an additional 10 minutes before freezing.
- Load and seal straws as usual. Freeze following standard procedure.

METHOD 2: PRECOOL ADDITION using 1-STEP CSS Protocol

- Following Standard CSS 1-step Protocol, prepare and warm bull semen extender (7% glycerol) to 38°C (100.4°F). One-step TRIS-CITRATE based extenders are recommended.
- Extend semen by slow addition of warm extender to 80% final volume. Equilibrate to 38°C (100.4°F). See recommended extension rates.
- Re-hydrate the HEIFERPLUS-20 vial with 1.5 ml of warm extender (100.4°F, 38°C). Use immediately. See Table 1.
- Add warm HEIFERPLUS to the extended semen. This will bring the extension to 100% final volume. Gently mix. See Table 1.
- Cool extended semen to 5°C (42°F) over a period of 2.5 hours and allow to equilibrate for at least 4 hours prior to freezing.
- Load and seal straws as usual. Freeze following standard procedure.

Table 1 Addition of HEIFERPLUS to produce 5.5 ml of HP+ Enhanced semen*

Straw volume (ml)	No. of straws	Volume of HEIFERPLUS-20	Volume of Extended Semen	HP+ Enhanced SEMEN
0.25	20	1.50 ml	4.0 ml	5.5 ml
0.50	10	1.50 ml	4.0 ml	5.5 ml

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

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.

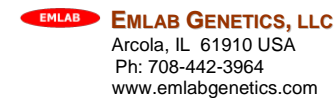
HOW SUPPLIED

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

WARNINGS

KEEP OUT OF REACH OF CHILDREN.

Mfg by:



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