**VACCINE HANDLING TIPS**

**TRANSPORT & STORAGE**
- Transport and store vaccine during use, in a cooler box with frozen ice packs if needed, to keep cool, but do not freeze. Keep vaccines out of direct sunlight.
- Do not put vaccine bottles directly on frozen, ice packs – put paper or bubble wrap in between.
- Store vaccine in fridge at 2°C to 7°C – monitor temperature.
- Keep vaccines in manufacturer’s vaccine boxes or bottles.
- Do not freeze or overheat vaccines – they are perishable and will become ineffective!

**MIXING**
- Mix vaccines according to manufacturer’s label directions.
- Modified-live viral (MLV) vaccines – come in a box with 2 vials (liquid, dry cake) - only reconstitute and mix 1 box of vaccine at a time; use immediately.
- For MLV vaccines, use a clean transfer needle to add liquid to dry vaccine cake.
- Gently swirl MLV vaccine liquid (diluent) and vaccine powder cake together until dissolved.
- Use MLV vaccines up within 1-2 hours after reconstituted and mixed.
- For clostridial vaccines or inactivated vaccines, gently swirl vaccine before and during use.

**ADMINISTRATION**
- Properly restrain cattle prior to vaccination.
- Use clean syringes and needles. Never put dirty needles inside a vaccine bottle.
- Label syringes to avoid cross contaminating different vaccines, which reduces their effectiveness.
- Administer vaccines as per manufacturer’s label directions for route (IM - intramuscular, SC - subcutaneous, IN - intranasal), and dosage.
- Give all injections in the neck area only:
  - IM injections: 18 gauge (calf) or 16 gauge (cow/bull) x 1” or 1.5” needle.
  - SC injections: 18 gauge (calf) or 16 gauge (cow/bull) x ½”, ¾”, or 5/8” needle.
- Space multiple injections a few inches apart; never inject through other products e.g., antimicrobial.

**CLEANING & DISPOSAL**
- Change needles every 5-10 head or before, if dull, bent or burred, and dispose in Sharps container.
- Changing needles every head may reduce the transmission of some infectious diseases, if cost effective.
- Clean syringes at end of day – only hot water inside barrel.
- Dispose of frozen, hot, contaminated, or unused opened vaccine, as per manufacturer’s label directions.