DIAGNOSTIC SERVICES: EVALUATION OF BULL FROZEN-THAWED SEMEN

Penn’s Reference Andrology Laboratory offers an extensive line of diagnostic services for examination of frozen-thawed bull semen. The primary purpose of these services is to aid practitioners in their differential diagnosis of individual and/or herd reproductive problems. These services are also frequently used by practitioners and bull studs as a third-party quality control component in an ongoing stud auditing process. Our laboratory strives to perform objective, validated techniques for assessing frozen-thawed semen samples. Below is a list of current tests offered:

**Routine Semen Analyses:**
- Sample Volume (NIST traceable)
- Sperm motility (Computer Automated Semen Analysis [CASA] – IVOS)
- Sperm viability (CASA – Fluorophore)
- Sperm and Acrosome morphology (DIC – Nomarski Optics)
- Sperm Concentration and Total sperm number/straw (CASA; Hemacytometry)
- Sample osmolarity, conductivity, pH (NIST traceable)
- Routine Microbiology Evaluation, including:
  - Direct, aerobic culture
  - Enrichment techniques
  - Genus species identification of isolates
  - Antimicrobial susceptibility testing

**Additional Tests Available:**
- Induced Acrosome Reaction (lysophosphatidylcholine, calcium ionophore)
- Cryocapacitation (Protein tyrosine phosphorylation immunoblotting)
- Acrosin Assay (gelatin film/Toluidine blue)

**Currently Under Development:**
- In Vitro Fertilization and Embryo Development assay
- Fluorescent flow cytometry for sperm chromatin and membrane characteristics

**Other:**
- On-site auditing of stud processes and techniques
- Semen extender analyses
- Spermicidal assessment of materials and isolates
- Water analysis

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