

## **CHECK LIST for Instrumental Insemination**

### **GOT EVERYTHING?**

During artificial insemination of the queen bee, various tools are used with a wide range of recommended tools. This can easily confuse beginners and complicate matters more than necessary. I have therefore assembled a list to aid in this process. Once the individual is more experienced, he may develop his own techniques.

### **Equipment and tools for the artificial insemination of queen bees:**

- 1) Functional and correctly adjusted insemination device**
- 2) Insemination syringe checked (Needles, seal, spare parts on hand)**
- 3) Stereomicroscope in working order (10–15x magnification)**
- 4) Functional cold light (spare bulb)**
- 5) Carbonic dioxide gas equipment ready to use, CO<sub>2</sub>-cartridge and/or filled gas cylinder**
- 6) Pressure cooker for sterilizing needles, syringe parts, and cotton swabs**

### **Tools:**

- 7) Disposable syringes 2–10 ml with rubber plunger and needles**
- 8) Sharp scissors, screwdriver, hex wrench and wire brush**
- 9) Petri dish (flat glass dish with cover, Ø 100 mm)**
- 10) Wooden tooth pick, round and pointed, as well as cotton balls**
- 11) Drone cage made of blocking wire (a honey jar will suffice)**
- 12) Physiological common salt solution 100–500 ml, 9%ig**
- 13) 1 Liter distilled water**
- 14) Isopropyl alcohol, 100 ml 70%**
- 15) Cellulose paper towels and aluminum foil**
- 16) Dish soap, better yet special cleaner**

All parts to come in contact with the sperm must be completely clean and sterile. The pressure cooker remains the best method (wrap parts in aluminum foil and during the steam process on the highest setting, hold over water for 15–20 minutes–see picture).

According to Susan Cobey's experience (University of OHIO) a thorough rinsing with alcohol and sterile salt solution suffices for the sterilization of HARBO syringes, available as an integrated unit when desired, item No. 1.04. PVC-hoses do not tolerate heat. Therefore, the hose connectors on HARBO syringes should be replaced regularly. As an additional precaution, the solution is squeezed through a bacteria filter (20 µm).



The 0.9 % NaCl solution (1) and disposable syringes with needles are essential (4, 5). The Petri dish and cover should not be left out (3). The bacteria filter (2) connected before the disposable syringe ensures no harmful germs will enter into the syringe (e.g. when the solution is no longer fresh) – brand SCHLEICHER + SCHUELL, FP 30/0.2 CA-S 0.2  $\mu\text{m}$ .

Do not allow alcohol to come in contact with acrylic or Plexiglas parts (test tube, syringe holder), as it can lead to cracking and clouding of the glass. Therefore, only clean these parts with soap and water (or dishwasher).

The syringe cylinder on the other hand is made of nylon and to a large extent tolerates chemicals and heat.

Consumable supplies such as disposable syringes with needles and physiological salt solution (infusion solution) for filling the insemination syringe are available in pharmacies, as well as cotton swabs, alcohol, etc.



## Pressure Cooker for Sterilization

Only a few parts are treated:

Insemination needle with seal, syringe parts, cotton swabs, and empty salt solution charging syringe with needle. The parts are loosely wrapped in aluminum foil and placed in the metal insert above the water fill level. Treat for 15–20 minutes on the highest setting during the steaming process.

Any other parts are simply kept clean. The work surface should have „clean“ and „dirty“ areas.

Ask please, if the parts are not specified in the catalog.