Purpose:
All cattle regardless of age belonging to Washington State University will be branded with WSU’s registered brand in compliance with Washington State Law (See: http://www.atq.wa.gov/opinion.aspx?section=archive&id=13938, for further details).
Cattle branded are identified as state property in this manner unless otherwise specified by the Principal Investigator while being housed in any facility associated with Washington State University facility. Ear tagging may be substituted for branding at the discretion of the Principal Investigator.
At the discretion of the Principal Investigator, other species of large animals can be identified using the freeze branding/ear tagging.

Guidelines:
Freeze Branding
Species: Cattle, Horses
Under WSU IACUC policy only freeze branding of an animal is allowed. This is in compliance with the WSDA regulation available at: http://agr.wa.gov/FoodAnimal/Livestock/BrandingIrons.aspx
When super-cold or chilled branding irons are applied to the hide of the animal, the pigment-producing cells are destroyed or altered. When the hair grows back, it is white. The method is not foolproof, and those using it should be aware that the results may be variable. The major advantages claimed for freeze branding are:
- The brand is more legible throughout most of the year than a hot-iron brand
- Freeze branding causes less damage to the hide than a hot brand.

Equipment needed
Personal Protective Equipment
Insulated safety gloves and face shield must be worn by the personnel performing the procedure.

Monitoring of Freeze Branding/Ear Tagging Procedures
The Freeze branding and Ear tagging procedures should ideally be included on the research or teaching protocol. The procedure is subject to observation by the WSU IACUC, Post-Approval Review team, and Office of the Campus Vet.

Inspection of instruments
All instruments i.e., brass freeze brand irons, electric clippers, safety razor, alcohol, gauze, liquid nitrogen container, Styrofoam cooler, and squeeze chutes should be inspected prior to use and ensure that they are in safe working order.

**Branding irons**

Branding irons should be heavy copper or bronze with slightly rounded faces. They should be 3- to 4-inch irons, 3/8- to 1/2-inch thick and at least 1 inch deep.

**Refrigerant**

Dry ice and liquid nitrogen are most commonly used as the refrigerant. If the branding does not take too long, 15 pounds of dry ice will be sufficient for a small herd of cattle. If the branding will not be done immediately or if the dry ice must be transported a distance, it is wise to buy more. Break part of the dry ice into very small pieces for rapid cooling; keep some larger pieces for sustained cooling. Always wear insulated gloves when handling the dry ice to prevent freeze burn. The solution most commonly used with the refrigerant is 95% methyl, isopropyl or ethyl alcohol. A less pure alcohol will not remain liquid when placed with dry ice. Acetone and gasoline should not be used because of the danger of explosion if used around open flames. Enough solution should be available to cover the dry ice and the irons by at least 1 inch.

**Clipper**

Clip the hair closely before branding. The cutters and combs should be sharp, with extra blades available to replace dull or damaged ones.

**Container for coolant**

The container should be insulated to keep the solution as cold as possible. Use two metal containers, one set inside the other with an insulating compound between, or a bucket wrapped in insulation. Styrofoam coolers are excellent, but should be set inside another container because they are fragile and easily broken. Select a container large enough to accommodate all the irons needed.

**Brush and plastic squirt bottle**

A stiff bristle brush is handy for brushing away loose hair and removing skin scurf after the animal has been clipped. A plastic squirt bottle, such as a container for liquid soap, works quite well for applying alcohol to the site of the brand just before applying the branding irons.

**Restraining equipment**

The animal must be securely restrained in a squeeze chute or head gate. Calves may be restrained on the ground on their sides.

**Chilling the irons**

When dry ice is added to the refrigerant solution, it will bubble profusely. As the solution is cooled, it will reach a steady rate of bubbling. The solution will be cooled to its minimum temperature in about five
minutes. It will take about 10 minutes for the irons to reach minimum temperature when they are first immersed. After the irons have been used in branding, they should be put back in the solution immediately if they are to be used again. It will take approximately 4-5 minutes for them to reach minimum temperature again. When the used iron is put back into the solution, more bubbles tend to appear. When the iron has reached the minimum temperature, the bubbling will slow to a constant rate.

Step-by-step branding

- When the animal is restrained, clip the area selected to brand. After clipping, brush away loose hair and any scurf that is on the skin.
- Immediately before branding, apply alcohol kept at air temperature to the site of the brand. Some people feel that a solution made of 1/3 glycerine and 2/3 alcohol works better.
- Immediately after you have applied the alcohol solution, apply the branding iron to the hide. Firm pressure is required to make good contact with the skin. Hold the iron in place for approximately 40 seconds when branding mature animals.

More than one branding iron can be used at the same time. However, one person should handle each branding iron to be sure uniform pressure is applied. Branding in fall and winter usually requires a longer application than in the spring. Satisfactory brands have been noted on calves that were branded for 30 seconds.

Over-branding will completely kill the hair follicles and will appear to be a hot-iron brand. Observations indicate that Herefords seem to need a longer application of the branding iron than Angus. An unclear brand when the hair grows back is an indication that the animal was under-branded. If there is prominent loss of hair, the animal was over-branded. If there is hair loss or no whiteness or hair at the top or bottom of the brand, there was not uniform pressure in the application of the iron.

Freeze branding hogs

A satisfactory method of freeze branding hogs has not been found to date. This may be partially due to the fact that the hair follicle in a hog is surrounded by a fat globule, and it is more difficult to secure the necessary coldness at the hair follicle to alter the pigment-producing cells.

Ear Tagging

Type: Radio Frequency Identity Tags (R-FID button), Rubber Tags, and Plastic Tags
Species: Cattle, Swine, Sheep, Goats, Llamas, Alpacas, and other Camelids, Bighorn sheep, Captive Deer

Equipment needed:
Personal Protective Equipment
Clean examination rubber gloves are recommended for personnel performing the procedure.

Monitoring of Ear Tagging Procedures
The Ear tagging procedures should ideally be included on the research or teaching protocol. The procedure is subject to observation by the WSU IACUC, Post-Approval Review team, and Office of the Campus Vet.

Inspection of instruments

Squeeze chutes, halters, or nose tongs should be inspected prior to use and ensure that they are in safe working order. Other equipments such as: electric clippers, safety razor, alcohol, and gauze should be inspected prior to use and ensure that they are clean/sterile and safe.

Clippers

Clip the hair closely before tagging. The cutters and combs should be sharp, with extra blades available to replace dull or damaged ones.

Step-by-step tagging

- Adult animals will be restrained in the squeeze chute just long enough to perform the procedure. The head will be haltered or nose tongs applied to prevent injuries to the animal or attendants. The ears should be cleaned with betadine or alcohol and hair clipped if necessary. The numbered tags with special applicators may be applied on one or two ears. The tags are inserted in to the outer portion of the ear avoiding the outer cartilage (muscle supporting the ear).
- Tagging of new born calves is ideally carried out within 6 hours after birth. A second plastic tag with the serial numbers of registered individuals is placed on the left ear after 2 months.
- In other cattle facilities, tagging can be carried out 24-48 hours post-natal on newborn calves.
- Individual identification and tagging of piglets takes place after weaning (average about 25 days age). Sows get differential tag after they have their first litter (about 12 months of age).

Microchip implanting

Type: Microchip

Species (example): Large animals

Equipment needed

Personal Protective Equipment

Clean examination rubber gloves and face shield are recommended for personnel performing the procedure.

Monitoring of Microchip implanting Procedures

The microchip procedures should ideally be included on the research or teaching protocol. The procedure is subject to observation by the WSU IACUC, Post-Approval Review team, and Office of the Campus Vet.

Inspection of instruments
Squeeze chutes, halters, or nose tongs should be inspected prior to use and ensure that they are in safe working order. Other equipment such as: electric clippers, safety razor, alcohol, and gauze should be inspected prior to use and ensure that they are clean/sterile and safe.

**Step-by-step Microchip**

Adult animals will be restrained in the squeeze chute just long enough to perform the procedure. The head will be haltered or nose tongs applied to prevent injuries to the animal or attendants. The microchip is injected subcutaneously under the left ear using a syringe. The area should be cleaned with skin disinfectant and hair clipped if necessary. Have a compatible reader available to show the identification of the individual.

**Monitoring of animals after Livestock Branding, Ear Tagging, Microchip implanting**

- All animals will be monitored on a daily basis after the procedures by the herds managers or other personnel to assess the well-being of the animal and contact the appropriate individual if any individual attention is needed.
- Personnel performing the procedures will be trained to conduct the restraint and process associated with the branding or tagging.
- New personnel performing the procedures will be under the direct supervision of experienced Facilities Manager.

Approved by WSU IACUC 2.29.12