

**Dear Friends, Neighbors and Customers**

**Animal Management and Animal Welfare at the Snake River Farm PART 4**

This letter is part of a series.

If you did not see the earlier letters, you can find them easily on Sarah's blog.

[www.sandhillfarmsarah.wordpress.com](http://www.sandhillfarmsarah.wordpress.com)

**In this letter, I will write about animal senses and animal memory.**

Animal senses are roughly like our senses but with many significant differences.

The same is true of animal intelligence.

This article is about those aspects of animal senses and intelligence that are relevant on this farm.

It is limited to the six livestock species of bison, cattle, horses, hogs, sheep and goats.

All of the above are prey animals. Hogs are prey but they are predators in some situations.

We cannot communicate directly with animals. That limits our ability to know precisely how animals experience the world. Nevertheless, we can learn a lot about animals by observation and testing.

Unfortunately, the only way we comprehend senses and intellect is by comparison to our own.

That certainly has limitations and it can be misleading.

**Some of the best practical insight we have into animal minds comes from Temple Grandin.** Grandin is a Professor of Animal Science at Colorado State University. She is autistic. Her verbal skills developed late in childhood. Her mind works mainly in pictures. Her memories are like videos. She claims that animals, lacking vocabularies think in basically the same way as she. There is strong evidence that she is correct.

Doctor Grandin, who is now in her late sixties, has brought about terrific and widespread changes in the field of animal welfare. She has focused her efforts on animal handling in slaughter facilities. Virtually all modern slaughter facilities incorporate her designs. Those designs greatly reduce animal stress.

You can learn all you wish about Grandin and her insights by simple Googling her name.

Gail says I should mention a 2010 biographical movie about Temple Grandin. It is quite good. Consider renting it from your local library. It is educational for both adults and children.

**Animal vision.**

The eyes of prey animals are on the sides of their heads. That gives them the ability to see a predator approaching from almost any direction. Predators, like humans, have eyes placed on the front of their heads. Frontal eye placement is necessary for binocular vision and for precise depth perception.

Prey animals give up depth perception for the ability to detect predators quickly.

In general, animals do not detect as many colors as humans. Their vision is optimized to detect motion.

Motion is best detected in black and white.

That does not mean animals have poorer vision than we do. Vision in prey animals is optimized to fit their needs.

Prey animals do have some capability for binocular vision. It is narrow however, and they can focus only directly in front.

These animals, most notably horses, must lift their heads high to focus on something distant.

They drop their heads low to focus close.

Most authors claim that bovines and horses have better night vision than we do. I am not convinced that is true. My human ability to navigate through wooded or uneven terrain seems superior to the animals that I am moving.

**Animal hearing** is generally superior to ours. Most species can hear a broader range of sound than humans can. In addition, these animals all have large exterior ears. Most of them can direct their exterior ears independently. That gives them enhanced ability to locate the origin of a sound. Prey animals can listen to two separate sounds at once. Horses frequently point one ear forward and one ear backward.

### **Animal olfactory sense.**

The ability of animals to detect scents is vastly better than ours. Our sense of smell is very weak. So weak that it is hard to imagine what a strong olfactory sense can do.

For example, the olfactory sense of a pig must be incredibly useful as it digs through the soil. Much more useful than the close-in binocular vision which the pig lacks.

**Animals have a chemical sensing organ** that is unique to ungulates and a few other creatures. Ungulates walk on their toes (hooves).

That chemical sensing organ is the vomernasal organ. It is located inside the mouth of the animal near the roof of the palate. Google the word to see images and learn more. This sense detects pheromones and hormones and is used to communicate between herd members.

I see it daily in our herds. It is most notable in horses, bovines and cats. If you have a cat, you are probably familiar with it. Most often, a male uses this organ by sniffing the urine or feces of a female. Females use it, but less frequently.

Originally, researchers fixated on the ability to detect pheromones and identified this sense as mostly sexual. i.e. A bull could tell when a cow was pregnant or approaching estrus. Researchers just seem to think that way.

There is evidence that the organ has much broader applications for general health and nutrition.

In a wild and free state herd leaders could use that knowledge to move the herd as needed to maintain herd health. A herd would naturally know where to locate minerals, herbs and nutrients within its range.

**Animals can detect the byproducts of fear** from other animals. For example if an animal is mishandled and terrified in a handling facility, the area must be cleansed before other animals are brought through. Otherwise, they will react fearfully in the same setting even though the mishandled animal is gone. This effect endures for days.

**Animal sense of taste** is superior to ours. In general, these species have several times as many taste buds as humans. Taste buds respond directly to the brain to encourage grazing animals to ingest more or less of a plant while they are eating it. That is useful to balance nutrients and to avoid toxins.

**Animals have a good sense of touch.** I doubt that it compares to the sensitivity that humans have in fingers and hands. I have seen little research on the topic.

**Animals have excellent memory.** Animal memory is probably as clear, accurate and long lasting as our own. It is crucial for animals to know every detail of their home territory. For roaming herds like bison or horses, that territory can be enormous.

They have both individual and "herd" memories. By working together, a herd can piece together information distributed in parts among many individuals.

Prey animals have sharp pictorial memories. An animal will notice one small thing out of place in a pasture or alley. The animal may then refuse to move forward until that item is investigated and cleared as a threat.

One new feature can cause a horse to shy on a path that it has traveled safely many times before.

Animals never forget an emotional experience. If a horse is frightened and reacts in fear it will never forget the cause of that fright. Working the animal past similar situations in the future will be difficult.

The animal may shy violently no matter how many times that action is calmly repeated.

There is strong evidence that animals recall scents with great precision. The memory includes the exact setting of the first time they detected that scent.

**Animals sense body language and emotions in others.** That includes members of their herd and humans.

Prey animals have greater sensitivity to body language than we have. They will often take a position that to us appears non attentive, such as grazing, while they carefully observe.

Animals that are newly introduced to a herd will often graze at a distance from the herd. They appear nonchalant but in fact are intently watching.

I am afraid I could expand on this topic indefinitely.

I would especially like to write on the instantaneous way that prey animals can respond to sensory input.

Tell me know if you are interested in more about animal intellect and communications.

I will try to write the next segment within a week.

Your feedback is welcome and helpful.

Best regards.

Tom

**Link to our Facebook page.**

[Snake River Farm Minnesota on Facebook](#)

**Sarah's Blog for all recipes, customer letters etc.**

[www.sandhillfarmsarah.wordpress.com](http://www.sandhillfarmsarah.wordpress.com)