

BW #10

- Draw a pedigree with three generations.
- The first generation has one married couple.
- They have 4 children (2 boys, 2 girls). (this is the 2nd generation)
- For the third generation, show one of the 4 children from the second generation with three children (2 boys, one girl)





**SELECTIVE BREEDING
(ARTIFICIAL SELECTION)**



SELECTIVE BREEDING: DETAILS

- Selective breeding involves **mating** organisms with “desirable” traits to get offspring with **the desirable traits of both parents**
- **HUMANS CHOOSE**
- Selective breeding is used mostly for dogs, cats, other pets, cattle, and **crops**.



SELECTIVE BREEDING EXAMPLE



Brahman cattle:
Good resistance to heat, but poor beef.



English shorthorn cattle: Good beef but poor heat resistance.



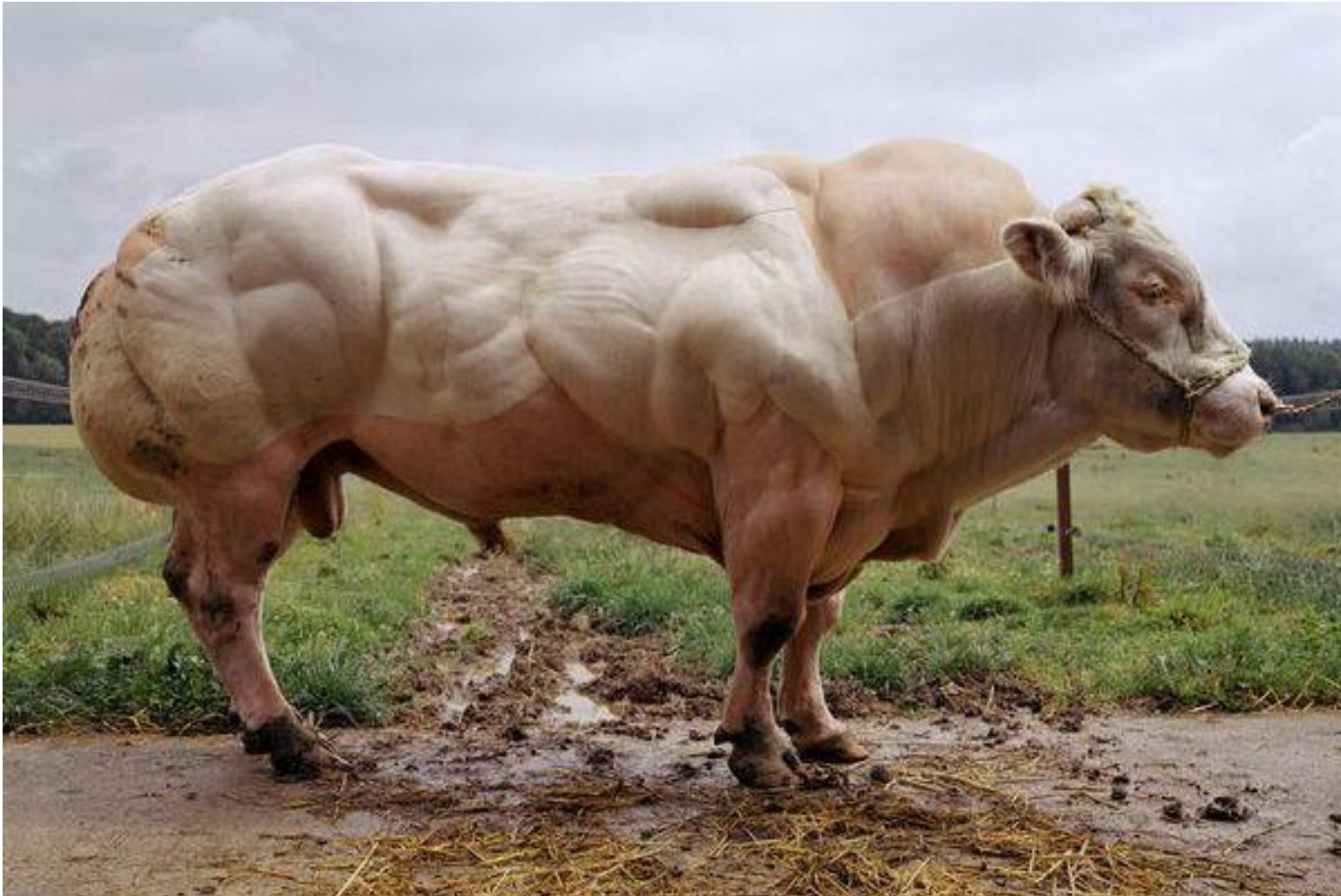
Santa Gertrudis cattle
(cross of 2 breeds)

RESULT = good beef
and resistant to heat!

hot weather cow + beefy cow = supercow



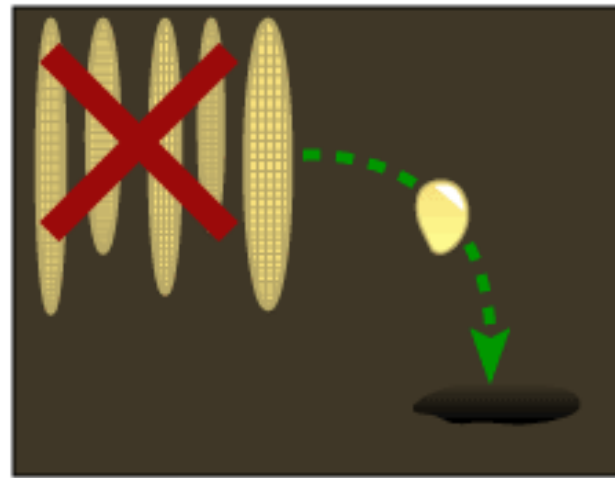
BELGIAN BLUE CATTLE BREED



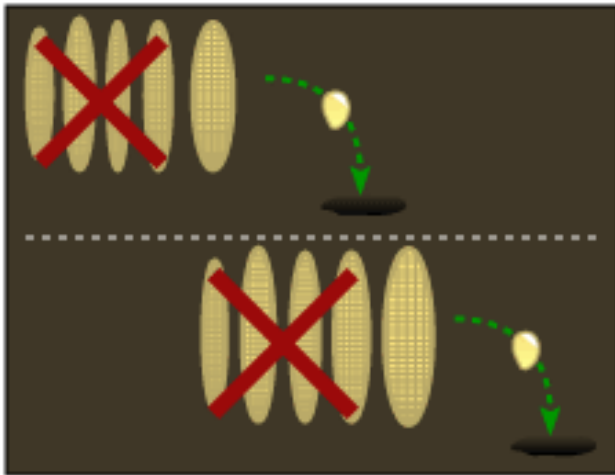
SELEC



1. Natural variation occurs in the wild population.



2. Seeds for the next generation are chosen only from individuals with the most desirable traits.



3. Repeat this process for several generations.



4. Over time, the quality of the crop increases.



Choosing only the best corn plants for seeds results in better crops over a long time.



SELECTIVE BREEDING EXAMPLE D

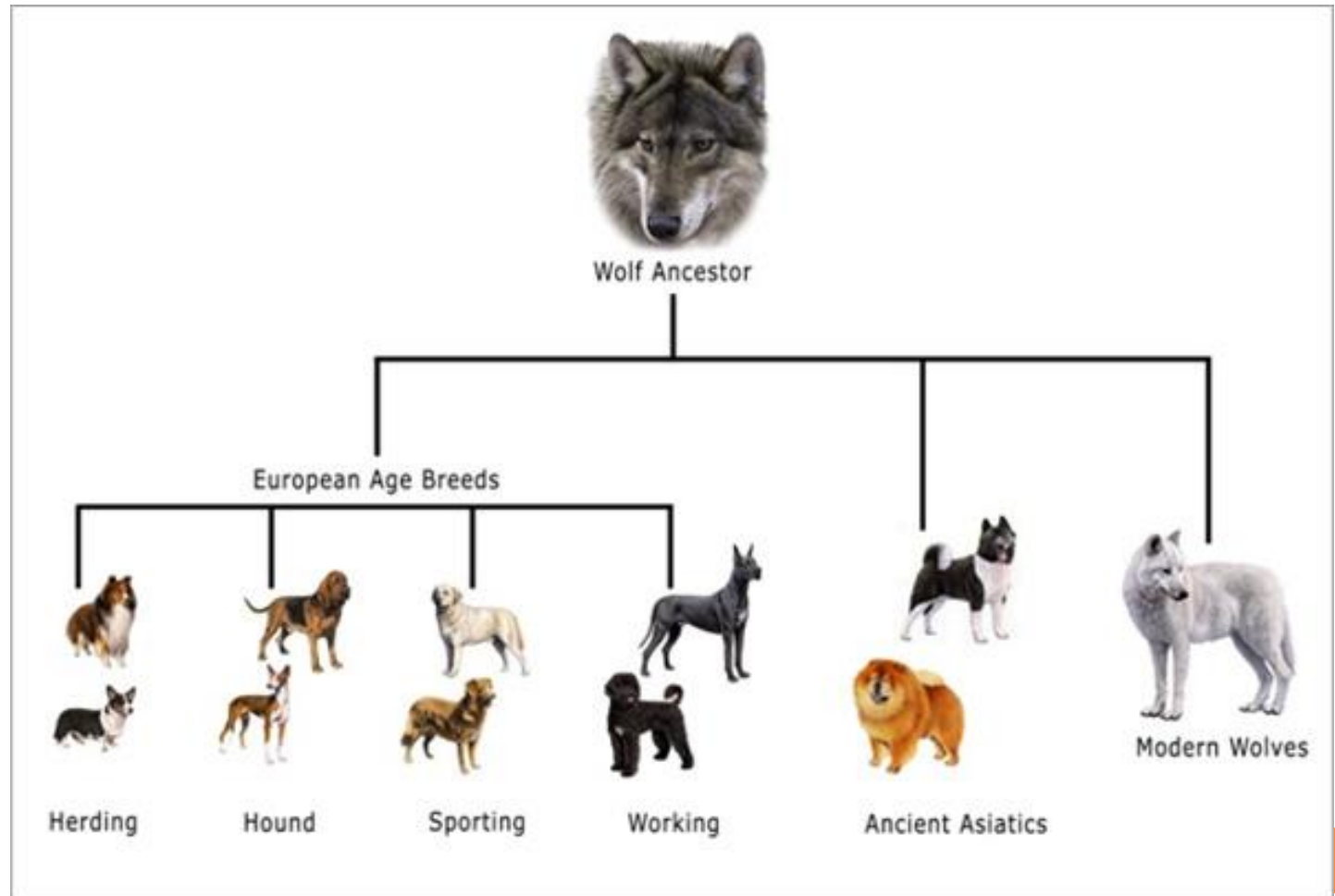


little red tomato + big green = BIG RED TOMATO



WOLF TO DOG

- Video





SELECTIVE BREEDING IN DOGS





ADVANTAGES OF SELECTIVE BREEDING

- Might get **improved** organisms
- **Don't** need any special tools or lab
- Can be performed **easily** by farmers & breeders



WHAT ARE SOME BENEFITS OF SELECTIVE BREEDING?



1) Produce crops resistant to disease.



2) Produce crops that are bigger



3) Produce animals that have less fat.

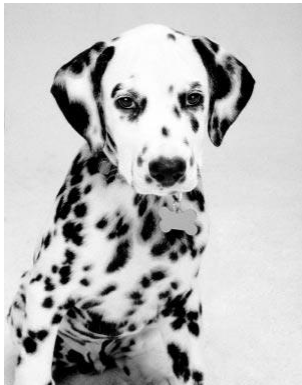


4) Seedless fruit!!!

DISADVANTAGES OF SELECTIVE BREEDING



- **Undesirable** traits from **both** parents *may* appear in the offspring
- example
- **Disease** can accumulate in the population
 - Many issues with certain dog breeds, such as: deaf Dalmatians, boxers with heart disease, labs with hip problems, etc.



EXAMPLES OF SELECTIVE BREEDING



Chihuahuas and Great Danes are bred for size.

BOXER



flat face leads to
respiratory distress

gum tissue may
overgrow teeth

prominent eyes prone to
developing ulcers

very high risk of cancer

prone to epileptic
seizures

increased risk of
heart defects



BULLDOG

breathing difficulty due to malformed nose and face, and undersized windpipe

eyelid may fold and irritate eye

skin folds may lead to irritation and infection

extreme difficulty exercising

elbow and hip joints may be painfully malformed

usually incapable of natural birth and mating



THE NUMEROUS SKIN FOLDS OF A CHINESE SHAR-PEI, SO VALUED BY SOME BREEDERS, CAN BECOME BREEDING GROUNDS FOR STAPHYLOCOCCUS AND OTHER BACTERIA, WHICH CAUSE FREQUENT SKIN INFECTIONS. ALSO, EXCESS WRINKLES OF SKIN ON THE FACE CAN RUB ON THE EYE, CAUSING LESIONS AND, POTENTIALLY, BLINDNESS.





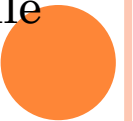
REMEMBER!

- Selective breeding crosses (mates) organisms with **desirable traits** to produce offspring that have the traits from both parents!





Mini Australian Shepherd x Toy Poodle



○ Use a phone to search
“*selective breeding problems in dogs*”

- What other breeds did you learn about?

