

**Lesson 5**  
**Grass-Pastures**  
*Developed by Kim McIntire-Wiley*

**Objectives: Teach students how a grass-pasture farm works; compare it to how a cell is built**

**Students will:**

- **Learn about the different animals on the farm**
- **Learn about the different plants/crops that work together**
- **Learn how the animals and plants work together**

**Curriculum Connections:**

- **Sciences**

**Student Skills Developed:**

- **Listening Comprehension**
- **Thinking skills – categorizing**

**Materials Needed:**

- **Information Sheet for Farm**
- **Diagram of Farm**
- **Diagram of Cell, for Cell-Farm Analogy**

**Group Activity:**

- **Talk about favorite animals**

**Discussion:**

Larga Vista Ranch – a grass-based mixed farm

The Wiley family bought the land that is now known as Larga Vista (long view) in 1917 when everything west of the Mississippi was considered a ranch. With a half section, they began a mixed farm with many different types of animals (cows, pigs, sheep, chickens, and turkeys) and raised many different crops including vegetables and hay. In those days farms were diverse by necessity, which protected farmers from losses in any one enterprise and gave them income stability. While farming is always difficult, the Wileys were able to survive the '21 flood, the Dust Bowl years and the Great Depression and were relatively successful.

Post World War II saw a different approach to land care and farming. Farmers were encouraged to specialize, rather than have a mixed farm. Doug's father, following this modern farming advice, developed the dairy as the sole enterprise, taking the cows off the pasture and putting them in pens and using the land to grow hay and corn. Calves were raised in pens in a barn and fed powdered milk as this was thought to be cleaner and healthier. Specializing in one enterprise left them vulnerable and the droughts and recession of the 70s and 80s took their toll on the dairy leading to bankruptcy in 1991. The cows and most of the machinery were finally sold and the bank took most of the land leaving only 50 acres to the Larga Vista Ranch.

With only 20 tillable (plantable) acres left, Doug, now in charge, knew a new method of farming was needed. Having studied pre-WWII agriculture (organic), he knew the best thing to do was to start over again using organic methods he had been trying for 10 years. He began by growing organic peppers, tomatoes, and melons, and planting mixed pastures on Larga Vista and his Aunt's farm. This led to the grass-finished beef and pigs on pasture and eventually a micro-dairy producing raw milk. Over the next 10 years, Doug felt he had mastered the basics of grass farming and continued to plant more and more of the farm into pasture.

Good pasture (a diverse mixture of grass, legumes, and forbs) is the basis of sustainable farming in our brittle, desert

environment. By keeping the ground covered, it effectively captures sunlight throughout the growing season, prevents erosion, encourages earthworm activity, and builds soil humus. All of this helps to capture carbon dioxide from the air and stores it in the soil. Carbon dioxide is thought to be one of the many gasses that contributes to global climate change or as some call it global warming. Adoption of this style of farming across the country would literally solve the climate change problem!

From this grass base, the Larga Vista has been restored to a diverse farm with many enterprises.

The raw milk dairy is the centerpiece with beef, pork, lamb, eggs, and organic produce rounding out the mix. Each enterprise is carefully selected to augment the others by helping to improve the pastures, build soil, and enhance the end product line. They all contribute to the balanced functioning of the whole farm.

Grass is the basis for the farm or the powerhouse (like mitochondria in a cell) of our current “mixed farm organism”. Within it, each plant and animal has a role in it just as the components of a cell do. Here is the outline of each species’ very important individual role:

- Grass: the basis for the farm or the powerhouse (like mitochondria in a cell)
- Intercropped grain/vegetable plants: food for animals and people, also when the plants die, their roots are chewed up by earthworms which helps to build the soil
- Cows: properly grazed in a rotational fashion instead of being on one piece of ground all the time, cows keep the grass healthy and not too long, help to break down dead plants in Colorado’s dry climate (won’t break down otherwise due to insufficient moisture to activate bacterial breakdown)
- Pigs: our pigs are on the pasture, we use them to renovate pastures because they like to dig, they help us use less fuel and spend less time on a tractor
- Chickens: custodians of the pasture, eat the pests (flies, insects) and spread manure around which helps to fertilize pastures better
- Sheep: weed control, they are browsers and eat weeds that cows will not
- Donkey: like a cell membrane keeping foreign invaders (coyotes, fox) out
- \*cows, pigs, chickens, donkeys recycle the nutrients in the system, eat grass and leave manure/urine
- Kim and Doug: much like the central nervous system, orchestrating the “dance” between plants & animals allowing each to express their genetic predisposition (pigs express their pig-ness by being able to dig & graze, cows grazing, etc), when animals are locked up in a building they are not able to do this. Try to mimic nature with its many species all on the same land but eating and giving back different nutrients, occupying different niches (areas).

During this time of the year (winter/spring) the animals play an extremely important role in building soil fertility and productivity. The land needs the animals, contrary to what some believe. In the end, we do all of this to improve the land and produce a sweeter watermelon, a better-tasting tomato, and a healthier, more natural cut of meat and glass of milk.