

# **HAYMAKING: A Trip Down Memory Lane**

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On a hot day in August, I climbed into the dust-free air-conditioned cab of a new tractor to assist in a hay baling demonstration during a field day. Hay yield was low as a result of the drought, so it was important that I get everything from the small windrow. I adjusted the volume on the surround sound stereo where I had just inserted a CD of the Eagles Greatest Hits. Now we're ready to bale – first let me check the GPS and get a check on the moisture of the hay coming into the bale chamber – moisture perfect. Now, let me pull up the local radar on my palm pilot to see if there are any “rain fronts” headed my way. Now, a quick cold drink from the cooler beside the seat and I'm ready to bale hay.

As I reflect on the above, I am quickly taken back to my childhood in Ohio County. My early memory of “haymaking” was watching my granddad cut hay with two mules pulling a mowing machine. I recall several phases of the harvesting operation including picking up loose hay with pitchforks, loading onto wagons, and hauling to the barn where it would be forked up into the barn loft – tramped down and stored for winter. I even remember having to put salt on the wet spots. When the barn was full, we would stack it in the field on poles and haul to the barn as needed during winter. I remember the dump rake, stationary balers (my first job was “punching wires”). I recall a neighbor getting the first AC Small Round Baler and we hauled the little round bales to the barn and stored.

All of the above experiences and more were brought home to me when I attended the American Forage & Grassland Conference in State College, Pennsylvania this past June. During my stay, I visited the Pasto Agricultural Museum and had time to visit and learn about “Haymaking History” from my longtime friend and mentor Dr. John Baylor. At the museum, visitors make a journey back in time when farmers used muscle power, both human and animal, to produce food and fiber for a growing nation.

Following that “museum” visit, I had the pleasure of spending time with Dr. John Baylor. Dr. Baylor is not a stranger to our Alfalfa Conference in Kentucky. I have used his material for over thirty years; I have quoted his data from high yield alfalfa, alfalfa quality and testing, and many areas of establishment and management. Many of you are also familiar with John because he did a sabbatic leave in Kentucky where he served as Chairman of the Board for the 14<sup>th</sup> International Grassland Congress when Kentucky hosted this event in 1981. Others are familiar with John as a “historian”. John wrote the history of the American Forage & Grassland Council and the Pennsylvania

Forage & Grassland Council. What you may not know is his latest history project was specific to hay. Specifically, Dr. Baylor assembled and brought together in a very concise publication “300 Years of Haymaking”. In addition, he brought together a team of very talented people and equipment to put “300 Years” in a demonstration for the Pennsylvania Agricultural Progress Days. Pennsylvania Public Television captured this on DVD and is not available to the public.

The 300 years John chose was from 1640 to 1940. The year 1940 was a natural time to conclude this historical review sponsored by the Pasto Agricultural Museum, as quoted in their guidebook, “Visitors to the Pasto Agricultural Museum journey back in time where farmers used muscle power, both humans and animal, to produce food and fiber for a growing nation all items are BC and BE – before computers, before electricity and before engines.”

### **Haymaking – 1640-1940:**

#### **1640-Early 1700s**

- Early pioneers had a few hay-consuming livestock, and cattle of colonial days were said to be small, scrawny, and unproductive. Most cleared land was cropped with grain – mostly wheat for human consumption. The few animals foraged in the woods on native grasses and browse.
- Swamps and marches yielded coarse hay (native wild grasses, sedges, etc.) for winter feed. Often the supply of hay was so inadequate that cows quit producing milk and frequently starved to death.
- In cleared areas (mainly areas burned-over by Indians to attract wildlife) native grasses were abundant and good for pasture and haymaking. Seeds of grasses brought from Europe were rarely sown.

#### **1700-1750**

- First seedings of mixed English grasses were mostly on unplowed land broadcast by hand or mixed with manure applied to open areas.
- First introduced species for hay and pasture (late 1600s and early 1700s) were red clover, white clover, and timothy.
- Hay tools consisted of sickle, scythe, wooden rake, and fork.
- The famous Lancaster County Conestoga Wagon was introduced around 1750.

#### **1750-1800**

- Timothy and red clover became dominant hay species. By 1790 “more than one-half of the arable land is generally in grass for pasture and hay, sown every third year with red clover and timothy seed.”
- Orchardgrass, bluegrass, and perennial ryegrass were grown for first time in Pennsylvania.
- Alfalfa (lucerne) introduced by gentlemen farmers, but unsuccessfully, probably due to soil acidity, lack of inoculation, and low soil fertility.

- Little improvement in breeding and feeding of cattle (mainly meat) until after 1790. Dairy farming before 1800 was mainly for family consumption, not an organized industry.
- Marked increase in hay production beginning about 1790, along with increased beef production for the Philadelphia market. Beef cattle mainly finished on “the most luxuriant hay.”
- Before 1790 iron was scarce and costly. Many farm implements, including plows, harrows, forks, and shovels, were made mostly of wood. “Until about 1790 plows used by Pennsylvania farmers were little better than those used by their ancestors in Europe and Asia many years earlier.”
- 1790s: New breakthroughs in plow design, including moldboard shape and cast iron moldboard, among others. In 1798 Thomas Jefferson designed and introduced a lightweight plow with a curved metal shield moldboard, the “moldboard of least resistance.”

### **1800-1840**

- Golden age of the drover: Driving beef cattle from western Pennsylvania and eastern Ohio to the Philadelphia market.
- Early 1800s: Birth of the dairy industry! By 1830 dairying became more profitable than beef production, followed by major improvements in cattle breeding. Initially, dairy products marketed were mainly butter and cheese. The fluid milk industry grew after 1840 with improved transportation – mainly the development of railroads.
- After 1800: Hay acreage increased rapidly. By 1840 clover and timothy hay were “one of most profitable crops in Pennsylvania for dairy, beef, and horses.”
- Early 1800s: Cast iron plow (moldboard, share, and landside cast in one piece) was patented. Farmers were skeptical because of high cost and because they believed “iron poisoned the soil and encouraged the growth of weeds.”
- Around 1819: Jethro Wood’s cast iron plow was patented with replaceable parts for those most exposed to wear. Considered a major advance, but farmers were still skeptical of metal moldboards.
- 1820: First mowing machine introduced, but it was not successful. First horse-drawn wooden rake introduced.
- 1835-1840: Horse-drawn, wooden-tooth hay rakes or “flop overs” became popular.

### **Mechanical Revolution on the Farm, 1840-1910**

In 1840 haying was considered one of the most onerous jobs on the farm. While some advances in mechanical haymaking had been made prior to 1840, most seedings of hay species were still made by hand in the 1840s and grass was still cut mainly with the scythe and raked with a handheld wooden rake. The 70-year period from about 1840 to 1910 was the animal-power period in which most of the work on the farm that had been done by human labor before the 1840s was now done with the ox and horse. Advances in haymaking tools between 1840 and 1910 came rapidly and included the following:

- 1840: Steel-toothed dump rake introduced along with improved seeding tools.
- 1840-1860: Rapid advances in horse-drawn mowers.
- By 1845: Marketing hay into Philadelphia and other urban areas for horses used for transportation in the city grew in importance. Successful attempts to compress hay for transporting were made.
- After 1845: Barns were designed and constructed to accommodate hay storage and convenient hay feeding of animals.
- 1860: Steel-toothed riding dump rake was introduced.
- 1860-1870: Hay tedder was introduced.
- 1865: Barn hay forks were developed.
- 1875: Hay loaders and steam-powered engines appeared.
- 1880: First silos, built underground, were introduced.
- 1887-1900: Most silos moved above ground and round silos, mainly wooden, became more common.
- 1900: Side delivery hay rake was introduced.
- 1900: Alfalfa was first successfully grown in Pennsylvania.
- 1905: Panama stationary hay press (animal powered) was introduced.
- 1905: Gasoline tractor was introduced.

#### **1910-1940**

- 1900-1940: Alfalfa acreage in the state increased from 52 acres in 1900 to over 250,000 acres in 1940.
- 1925: Light, general-purpose gasoline tractor became popular and began to replace draft horse power.
- 1925: Electricity for hay use became available on some farms. However, electricity on the farm did not become widely available until after 1930.
- 1930: Supplemental air-drying of hay was attempted. Hay dehydration was introduced.
- 1932: Mower-crusher was developed experimentally to speed up field curing of alfalfa hay.
- 1935: Hay crop silage, especially for first cutting, gained interest.
- 1937: First automatic field string baler was introduced.
- 1940: Nearly two-thirds of Pennsylvania had electricity.

My thanks to Dr. John Baylor for capturing and preserving this part of our “forage history”.

#### **References**

Baylor, John E. 2006. 300 Years of Haymaking in Pennsylvania. The Pennsylvania State University U. Ed. AGR 06-112.