

University of New Hampshire

University of New Hampshire Scholars' Repository

Faculty Publications

Spring 5-10-2022

Oxen: Status, Uses and Practices in the U.S.A., Encouraging a Historic Tradition to Thrive

Andrew B. Conroy

University of New Hampshire, Durham, drew.conroy@unh.edu

Follow this and additional works at: https://scholars.unh.edu/faculty_pubs



Part of the [Agriculture Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Animal Sciences Commons](#), and the [United States History Commons](#)

Recommended Citation

Conroy, Andrew B.: Oxen: Status, Uses and Practices in the U.S.A., Encouraging a Historic Tradition to Thrive, in: Staatliche Schlösser und Gärten Hessen, Kropp, Claus and Zoll, Lena (Eds.): Draft Animals in the Past, Present and Future, Heidelberg: Propylaeum, 2022, p. 137-152.

This Book Chapter is brought to you for free and open access by University of New Hampshire Scholars' Repository. It has been accepted for inclusion in Faculty Publications by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact Scholarly.Communication@unh.edu.

Oxen: Status, Uses and Practices in the U.S.A., Encouraging a Historic Tradition to Thrive

Andrew B. Conroy



Abstract

Oxen in the United States of America have played an important role throughout its history. Unlike other countries, oxen were never completely given up for horses, mules, or tractors. Instead, the culture of keeping oxen has been maintained by a small group of teamsters in the North-eastern states collectively called New England. Their continued presence has been largely due to agricultural fairs and exhibitions where they have been used in competition for the last 200 years. Ox teamsters were surveyed in 2021 via social media using Qualtrics. The 423 ox teamsters responding owned 1791 oxen in 39 states, with the majority of oxen and teamsters in Maine, New Hampshire, Vermont, Connecticut, Massachusetts and New York respectively. The gender breakdown of ox teamsters was 59 % men, 40 % women. Results showed 257 teamsters used their oxen for farm work, 213 for exhibitions and parades, 191 for logging, 173 for recreation, 165 for competition showing, 144 for competition pulling, 85 at living history farms and in historic settings, and 18 in television and movies. Teamsters worked oxen an average of 7 hours/week and 89 % train the oxen as calves. 289 people learned to train from friends, 211 from family, 202 from books, 158 from organizations related to oxen, 156 from the Internet, 152 in the 4-H program, 129 from videos, 94 at hands-on workshops, 54 from magazines and 42 from living history farms. More than 20 breeds of cattle were used as oxen with Milking Shorthorns (11.9 %), Holstein-Friesians (10.9 %), Chianina (9.6 %) and Brown Swiss (9.3 %) being the most numerous.

Résumé

Aux États-Unis d'Amérique, les bœufs ont joué un rôle important tout au long de l'histoire du pays. Contrairement à d'autres pays, les bœufs n'ont jamais été complètement abandonnés au profit des chevaux, des mules ou des tracteurs. Au contraire, la culture de l'utilisation des bœufs a été maintenue par un petit groupe d'utilisateurs dans les États du nord-est, collectivement appelés Nouvelle-Angleterre. Leur présence continue est due en grande partie aux foires et expositions agricoles où ils ont été utilisés en compétition au cours des 200 dernières années. Les conducteurs de bœufs ont été interrogés en 2021 par le biais des médias sociaux en utilisant Qualtrics. Les 423 meneurs de bœufs qui ont répondu possédaient 1791 bœufs dans 39 États, la majorité des bœufs et des utilisateurs se trouvant respectivement dans le Maine, le New Hampshire, le Vermont, le Connecticut, le Massachusetts et New York. La répartition par sexe des conducteurs de bœufs était de 59 % d'hommes et de 40 % de femmes. Les résultats ont montré que 257 meneurs utilisaient leurs bœufs pour les travaux agricoles, 213 pour les expositions et les parades, 191 pour l'exploitation forestière, 173 pour les loisirs, 165 pour les concours de présentation, 144 pour les concours de traction, 85 dans des fermes historiques et 18 pour la télévision et le cinéma. Les utilisateurs ont travaillé avec leurs bœufs en moyenne 7 heures par semaine et 89 % d'entre eux les ont dressés en tant que veaux. 289 personnes ont appris à dresser les bœufs auprès d'amis, 211 auprès de la famille, 202 dans des livres, 158 auprès d'organisations liées aux bœufs, 156 sur Internet, 152 dans le cadre du programme 4-H, 129 dans des vidéos, 94 lors d'ateliers pratiques, 54 dans des magazines et 42 dans des fermes d'histoire vivante. Plus de 20 races bovines ont été utilisées comme bœufs de trait, les plus nombreuses étant les Shorthorns laitiers (11,9 %), les Holstein-Friesians (10,9 %), les Chianina (9,6 %) et les Brown Swiss (9,3 %).

Kurzfassung

Ochsen haben in den Vereinigten Staaten von Amerika im Laufe ihrer Geschichte eine wichtige Rolle gespielt. Im Gegensatz zu anderen Ländern wurden Ochsen nie vollständig zugunsten von Pferden, Maultieren oder Traktoren aufgegeben. Stattdessen wurde die Kultur der Ochsenhaltung von einer kleinen Gruppe von Gespannfahrer:innen in den nordöstlichen Staaten, die unter dem Namen New England zusammengefasst sind, aufrechterhalten. Ihr Fortbestehen ist vor allem auf landwirtschaftliche Messen und Ausstellungen zurückzuführen, wo sie in den letzten 200 Jahren im Wettkampf eingesetzt wurden. Die Ochsenkutscher:innen wurden im Jahr 2021 über soziale Medien mit Hilfe von Qualtrics befragt. Die 423 befragten Gespannführer:innen besaßen 1791 Ochsen in 39 Bundesstaaten, wobei die meisten Ochsen und Gespannführer in Maine, New Hampshire, Vermont, Connecticut, Massachusetts und New York zu finden waren. Das Geschlecht der Gespannfahrer:innen setzte sich aus 59 % Männern und 40 % Frauen zusammen. Die Ergebnisse zeigen, dass 257 Gespanne ihre Ochsen für landwirtschaftliche Arbeiten, 213 für Ausstellungen und Paraden, 191 für Holzfällarbeiten, 173 zur Erholung, 165 für Vorführungen bei Wettbewerben, 144 für das Ziehen bei Wettbewerben, 85 auf historischen Bauernhöfen und 18 in Fernsehen und Film einsetzten. Die Fuhrmeister:innen arbeiteten im Durchschnitt 7 Stunden pro Woche mit Ochsen und 89 % trainierten die Ochsen bereits als Kälber. 289 Personen lernten das Training von Freund:innen, 211 von der Familie, 202 aus Büchern, 158 von Organisationen, die sich mit Ochsen beschäftigen, 156 aus dem Internet, 152 im 4-H-Programm, 129 aus Videos, 94 bei praktischen Workshops, 54 aus Zeitschriften und 42 auf historischen Höfen. Mehr als 20 Rinderrassen wurden als Arbeitstiere verwendet, wobei Milking Shorthorns (11,9 %), Holstein-Friesen (10,9 %), Chianina (9,6 %) und Braunvieh (9,3 %) am häufigsten vertreten waren.

Resumen

Los bueyes han desempeñado un papel importante a lo largo de la historia en los Estados Unidos de América (EEUU). A diferencia de otros países, los bueyes nunca fueron sustituidos por completo por caballos, mulas o tractores. Sin embargo, la cultura de cría de bueyes ha sido mantenida solo por un pequeño grupo de carreteros en los estados del noreste, llamados colectivamente Nueva Inglaterra. Su ininterrumpida presencia se debe en gran parte a las competiciones de bueyes en las ferias y exposiciones agrícolas de los últimos 200 años. En 2021 la empresa estadounidense Qualtrics realizó una encuesta entre jinetes de bueyes en los EEUU a través de las redes sociales. Los 423 criadores de bueyes que respondieron poseían 1791 y residían en 39 estados diferentes, la mayoría de ellos en Maine, New Hampshire, Vermont, Connecticut, Massachusetts y Nueva York respectivamente. El porcentaje de transportistas de bueyes era de un 59 % hombres y un 40 % mujeres. Los resultados de la encuesta mostraron que 257 jinetes utilizaron sus bueyes para el trabajo agrícola, 213 para exhibiciones y desfiles, 191 para la tala de árboles, 173 para el ocio, 165 para la competición, 144 para la competición de arrastre, 85 en granjas históricas vivientes y 18 en la televisión y el cine. Los jinetes trabajaron con bueyes una media de 7 horas semanales y el 89 % estos fueron entrenados desde becerros. 289 personas aprendieron a entrenar de amigos, 211 de la familia, 202 de libros, 158 de organizaciones relacionadas con los bueyes, 156 de Internet, 152 en el programa 4-H, 129 de videos, 94 en talleres prácticos, 54 de revistas y 42 de granjas históricas vivientes. Se utilizaron más de 20 razas vacunas, siendo las más numerosas la Shorthorns (11,9 %), la Holstein-Friesian (10,9 %), la Chianina (9,6 %) y la Brown Swiss o Parda suiza (9,3 %).



Review of Literature

History of Oxen in the U.S.A.

Robert Pike, in 'Tall Trees, Tough Men', stated the importance of the ox and the reasons why his presence always preceded other draught animals in almost every agricultural region in the world where horses might also be used. He was referring to the ox in a New England context, but his statement captures the essence of the ox in almost any region of the world. I will build on this quote to show how the ox in every way mentioned below found its place in North America and continues to be found in six Northeastern states, along the Atlantic coast, called New England.

*"Before the horse there was the ox. The ox has many advantages: he is stronger than a horse; he is less apt to be scared; he is less inclined to flounder in snow and mud; he is not so given to sickness; he is less expensive to buy and keep; and if it becomes necessary; he is better to eat."*¹

Pike's statement above was accurate, and his words were also supported by earlier writers². Yet, his statement about oxen being stronger than horses is not necessarily true today. In the mid-1800's oxen were indeed larger than horses in the Americas³, but by the late 1800's as larger breeds of horses were imported, oxen were no longer necessarily stronger. A well harnessed and trained horse of the same weight as an ox will most often be able to pull larger loads or logs⁴.

Oxen in North America

Shortly after their arrival in the New World, in what is now North and South America, the Spanish introduced their cattle and head yokes with which to work them⁵. Decades later the English brought their cattle and their neck yokes with which were familiar to Virginia and the New England colonies. While many European farmers were having great debates on the use of oxen versus horses at the end of the Middle Ages⁶, the early American pioneers had no choice but to use oxen. Like their ancestors in Europe, manufactured resources were scarce. Good harnesses, well-built wagons and carts, grain for livestock and good roads were not available for decades. The early colonists recognized that cattle could survive under conditions that would have killed horses⁷. Cattle provided the power, leather, milk, meat and manure to build a new world⁸. Conditions were so difficult in the Northern settlements during the 1600's many cattle died due to the severe lack of winter feed⁹. Cattle that survived ate anything resembling roughage that they were given or allowed to find¹⁰. For the important spring plowing oxen

were often in very poor condition, some barely able to perform in the yoke.

For the early cattle that survived the first winters in North America, their needs were few, but their jobs on a farm were many. Teams of oxen provided the draught power to tame the 'New World' and begin agricultural endeavors¹¹. In the early colonies, the ox thrived where other draught animals failed¹². Throughout colonial history oxen toiled under the yoke, ready for any task demanded of them. The ox was used first for logging in the vast forests of the colonies along the Atlantic coast¹³. By the mid to late 1600's teams of oxen were used to haul huge white pine logs strictly reserved for the British Navy's masts. This task required as many as 12-40 pairs of oxen to haul logs from the interior to the coast¹⁴. Many major roads through coastal towns in New England still bear the name Mast Road, due to the history of their location and use. This activity allowed New England ox teamsters to develop advanced skills in logging well before 1700¹⁵.

Logging most took place in winter when the oxen could haul larger loads on frozen ground and roads¹⁶. In the spring season early farmers used oxen to pull tree stumps, later used to make stump fences and to remove boulders from recently cleared forests. These were used to make more permanent stonewalls that have lasted centuries¹⁷. Spring was time for plowing and harrowing fields, and later planting crops. Summer was a time for harvesting hay and other crops, excavating the land for building and making roads. Oxen hauled carts or wagons in summer and sleds in winter, which were filled with everything that the early colonists purchased, sold, or moved¹⁸. The work of the ox included pulling covered bridges into place, moving buildings, and moving everything from wood products to military armaments and supplies during the American Revolution¹⁹. As lands to the West of the early American colonies were opened up in the 1800's, farmers packed their belongings into wagons most often drawn by 6-8 teams of oxen and began the great westward expansion²⁰.

The ox continued to be a very important animal on the farm in the United States throughout the eighteenth and much of the nineteenth century. The presence and prominence of the ox can be seen in almost any photograph depicting the early settlements, agriculture and transportation in early America before 1900²¹. In time the horse replaced the ox in many midwestern and western areas, and the mule replaced oxen in many southern regions²². However, this was not until the ox had cleared the way for civilization²³. Oxen were the primary draught animals to provide the power to clear the virgin forests of their enormous trees making way for the crops nec-

1 Pike 1967, 116.

2 Skinner 1844; Periam 1884; Meeker 1922; Marcy 2006.

3 Ibd.; Skinner 1844.

4 Conroy 2007, 149.

5 Dunmire 2013, Chapter 4; Id. 2021, 147.

6 Collins 2010; Liebowitz 1992.

7 Conroy 2007, 255.

8 Clater 1844, 151.

9 Smithcors 1958, 172.

10 Conroy 2007, 254.

11 Walden 1933, 112.

12 Conroy 2007.

13 Carlton 1939.

14 Cowan 2003, 21.

15 Ibd., 27.

16 Conroy 2007, 177.

17 Sloane 1962, 29.

18 Conroy 2007, 254.

19 Skinner 1844, 149p.

20 Marcy 2006; Ahmed 2016.

21 Conroy 2007, 254.

22 Kaufman/Liebowitz 1997, 18.

23 Skinner 1844, 151.



Figure 1 – Oxen pulling freight wagons in the Black Hills, South Dakota, 1891

essary for human survival. They were the first animals to plow tough prairie sods²⁴, and to build the trails, roads and bridges necessary to bring people to the newly settled areas of the American West. The plodding, patient beasts with simple wooden yokes forded rivers, crossed the hot plains, deserts, tallgrass prairies and even the great swamps of the Southeast²⁵.

On the Oregon Trail and earlier treks westward, the ox was preferred over the horse or mule because he was much cheaper to buy²⁶, was less likely to be stolen by Native Americans²⁷, was easier to capture on horseback²⁸, and in deep mud and water was easier to control than mules and horses²⁹. In the case of injury or death, oxen were also better to eat³⁰. They were thought to be easier to control for teamsters unfamiliar with draught animals³¹. The greatest attribute of the ox was its ability to do well on coarse roughage³². Being ruminant animals with four stomach compartments the oxen could graze at night, gorging on local forages in a few short hours, later chewing their cud and more effectively processing the roughage than the horse or mule. Oxen were slower moving than a well-fed horse or mule, with the U.S.

Cavalry estimating the speed of the horse at 3 miles per hour, mules at 2.5 miles per hour and oxen at 2 miles per hour on a good road pulling a light load³³. Oxen could be persuaded to move faster achieving 3-4 miles an hour in an emergency if they were in good condition³⁴. Staying in better condition and setting a slower steady pace, an ox could equal the performance of both the horse and mule on long, difficult trails with poor grazing³⁵. On good days oxen could average 16-18 miles by traveling in the cool of the morning, resting in the midday sun, and resuming the trek in the afternoon³⁶.

As trails became roads, farmland was settled and tough sods were opened in the tall and short grass prairies with oxen³⁷, the demise of the ox soon followed. Ample amounts of good feed, especially grains to supplement the native grasses³⁸, lighter plowing, and larger farms gave the faster horses and mules the advantage³⁹. Thereby, the ox lost his prominence in much of the Western U.S.A.. By 1890 the ox had disappeared from the majority of the American landscape⁴⁰. In New England, the states of Maine, New Hampshire, Vermont, and especially Connecticut maintained the highest proportion of oxen to total draught animals in the Northeast in the 1890's.

24 Liebowitz 1992, 32.

25 Meeker 1922; Gregg 1954, 73.

26 Marcy 2006, 29.

27 Ahmed 2016, 21; Gregg 1954, 73.

28 Marcy 2006, 29.

29 Gregg 1954, 46; Meeker 1922, 23.

30 Marcy 2006, 28.

31 Ahmed 2016, 21.

32 Kauffman/Liebowitz 1997, 14.

33 Cecil 2020, 69.

34 Marcy 2006, 29.

35 Kauffman/Liebowitz 1997, 18.

36 Marcy 2006, 29.

37 Kauffman/Liebowitz 1997, 20.

38 Periam 1884, 661.

39 Danhof 1969, 143.

40 Liebowitz 1992, 35.



The mid-Atlantic state of North Carolina actually showed an increase in the percentage of oxen between 1850 and 1890⁴¹. Similarly, Alabama, and Florida increased their percentage of oxen, largely due to logging in difficult areas in the late 1800's⁴². The last stand for the ox, outside of New England was in the great forests of northern California, Oregon and Washington in the late 1800's and early 1900's⁴³.

Oxen in New England

The ox was a draught animal that symbolized New England's history, and much like the mule in the Southern U.S.A. and the horse in the Western U.S.A.⁴⁴. The presence of the ox became intertwined with the New England region's rural culture and folklore⁴⁵, as oxen were the most important draught animal to the region's early development⁴⁶.

To some, the ox symbolized backwardness or farmers who were cash strapped and unwilling to change⁴⁷. However, for New England farmers, the ox was well suited to their needs⁴⁸. His slow pace and patient manner made him much less likely to break the farm implements pulled through the rocky hillside fields⁴⁹. Preferring cool weather and having no fear of water the ox was comfortable working in winter, or in the wet soils and swamps commonly found in New England. Conversely, horses and mules struggle in the wet ground where their hooves can get stuck, and often become frantic when they have to pull in deep snow⁵⁰.

On the small farms in New England, the ox found work throughout the year⁵¹. They were used for logging in winter⁵² and for hauling the sap from maple trees in early spring⁵³. They would then be used for spreading manure, plowing, harrowing fields and planting crops such as wheat, rye and corn. In the warm weather of summer, oxen could be found working in hay fields and harvesting other crops. In much of New England, there were always stones to be removed from the fields and stumps to be pulled from new ground. By the late 1600's they could be found in every New England community where soil had to be tilled and materials moved on land, which often included moving buildings⁵⁴. Their work was much like the work done by the truck or tractor today. They were not the fastest mode of transportation, but they were dependable, cost-effective, and readily available, especially for small-scale farmers⁵⁵. Finally, when not at work, oxen were active capital for a small farmer, whereby the farmer could realize his full investment in an ox at the hands of the nearest butcher in the case of an accident or injury⁵⁶.

41 Ibid., 32; Garrett 1998, 236.

42 Liebowitz 1992, 32; Martin 1998, 230.

43 Andrews 1997.

44 Welsch 1994.

45 Welsch 1988; Id. 1993; Id. 1994.

46 Conroy 2007, 254.

47 Liebowitz 1992, 32; American Agriculturist 1872.

48 Hubka 2004, 62.

49 Conroy 2007, 149, 255.

50 Meeker 1922, 23; Martin 1998, 231.

51 Dangerfield 1821, 1; Skinner 1844, 149; Meeker 1922.

52 Liebowitz 1997, 34; Pike 1967, 117; Cowan 2003, 9.

53 French 1911, 42.

54 American Agriculturist 1873, 1; Hubka 2004, 140, 172.

55 Danof 1969, 143.

56 American Agriculturist 1872.

History of Ox Training

As early as the 1700's the ox teamsters in New England had gained notoriety for their work with draught cattle. William Strickland, an Englishman passing through Springfield, Massachusetts in 1794 commented,

"Stout able bodied oxen are everywhere, used for the purposes of husbandry. Hardly a horse is kept upon a farm: two or four go on a plough, a waine or waggon; they all work with common yokes, and are more tractable and better broke than I ever saw in England; it is not uncommon in this country for a boy to begin working a pair in a very light carriage, when they are little more than calves, which it may be intended for him to drive many years afterwards, by which means they become so habituated to him that they will follow him about like a dog."

Beyond the above quote, there is ample evidence that children "played with" and trained bull calves to be oxen in New England and other regions⁵⁷. In the book *Yankee Drover*, based on the autobiography of an early American farmer named Asa Sheldon, he wrote at length about his work with livestock and in particular oxen. As early as age 8, Asa was employed by farmers to plough with oxen, "...a work that pleased me – at a shilling per day..." and at age 9 was employed by his father to log with oxen in Massachusetts in 1797⁵⁸. Jochen Welsch cites a publication called *The Cultivator* in 1844, where an 8-year-old Elijah Carpenter exhibited his 6-month calves at the Worcester County Cattle Show⁵⁹. The fact that children frequently trained oxen in New England has been a long-standing tradition that likely resulted in better-trained oxen when the animals mature. Training oxen as calves allowed them to be more calm, docile and easily put to work⁶⁰. Being that cattle are more patient and forgiving than horses or mules, the job of training the calves was often as much recreation for the hard-working children of early America⁶¹, as it was essential an essential component of having a constant supply of well-trained animals. Early writers, especially those from New England encouraged training the animals young and doing so in a manner that used patience and firmness, rather than anger, force and profanity⁶².

Organized agricultural shows in New England seemed to have appeared in the early 1800's, with farmers being encouraged to attend and compete as a method to transfer new agricultural practices. The oldest continuous agricultural fair in the U.S.A. is the Brooklyn Fair in Connecticut, which started in this way in 1809⁶³. Historian Jochen Welsch explored this phenomenon and attributes much of the idea of cattle shows to the "progressive farmers"⁶⁴. As early as 1811 in Massachusetts there were efforts to inspire the less progressive farmers to adopt new ideas⁶⁵. Thereafter, in the 1800's it became more common for articles to appear in agricultural papers and newsletters

57 Meeker 1922, 9.

58 Sheldon 1988, 11.

59 Welsch 1994, 41.

60 Skinner 1844, 156; Periam 1864, 66; Walden 1933, 117.

61 Sloane 1962; Meeker 1922.

62 Skinner 1844, 156; Manning 1882, 653; Periam 1884, 661.

63 Windham County Agricultural Society 2012.

64 Welsch 1994, 23.

65 Id. 1988; Id. 1993; Id. 1994, 23.

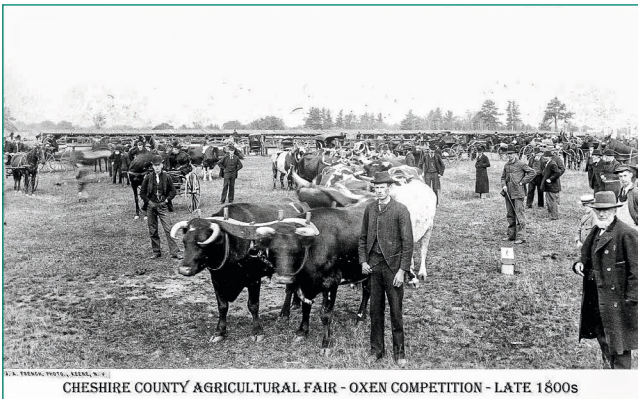


Figure 2 – Ox Show at the Cheshire Fair in New Hampshire late 1800's

about the New England ox at fairs and shows⁶⁶. Improved ideas about their use, yokes and even shaping horns to make teams more attractive also appeared in the press⁶⁷.

As oxen began to disappear from even New England farms in the late 1800's the number working in the forests also dwindled. Robert Pike said, "by 1890, there were a few old timers swore by them ... but the beasts had generally been replaced by horses in the New England lumbering woods."⁶⁸

Ezra Meeker in his autobiography and return to the Oregon Trail in 1906 said "the time of the ox had passed"⁶⁹. However, one place from which oxen never completely disappeared was the agricultural fairs common throughout New England. Many of these fairs have been held continuously for over 150 years. The events, especially ox pulling, to the disappointment of the progressive farmers, became more popular for the entertainment of the less progressive farmers and rural citizens

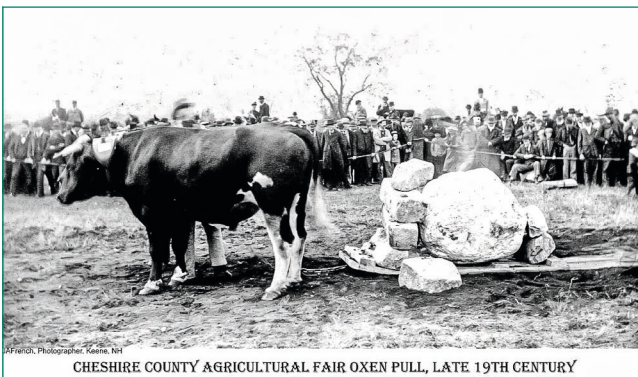


Figure 3 – Ox Pulling competitions began by teamsters walking their oxen from their farms and coming together to determine who had the strongest oxen as a form of entertainment at the fairs

than did plowing contests or events related to improved practices⁷⁰. However, ox pulling provided the impetus for New England farmers to keep oxen to this day⁷¹.

Similar to early agricultural shows, hands-on learning began to encourage children to consider new agricultural ideas beginning in the late 1800's. In the states of Minnesota and Ohio rural youth programs started in 1902. These were considered the predecessors to the national

66 American Agriculturist 1871, 1.

67 Id. 1855; Id. 1872; Id. 1873; Id. 1874; Id. 1881.

68 Pike 1967, 117.

69 Meeker 1922.

70 Welsch 1994, 75.

71 Ibd., 52.

4-H program. By 1912 the rural youth clubs were called 4-H clubs. A four-leaf clover with the letter H on each leaf represented promoting positive ideas for the Head, Heart, Hands, and Health. In 1914 the program was adopted by the Cooperative Extension System within the United States Department of Agriculture to promote youth development outside of public schools⁷². This program continues to this day and includes agricultural and non-agricultural activities. In 4-H youth to learn about domestic animals, in part by exhibiting their livestock at agricultural shows, fairs and other events. 4-H clubs and programs today can be found in all 50 states.

With a long history of children training and even showing oxen, the state of Maine was the first state to initiate a 4-H Working Steer program. The idea was developed in the early 1960's in Franklin County, Maine⁷³. It allowed children who were interested in oxen to be trained in how to work with and care for oxen in a club environment. They were also encouraged to demonstrate what they learned in shows exclusively for children through the 4-H



Figure 4 – The 4-H Working Steer (ox) Program started in the early 1960's in Maine and spread to other New England States in the 1970's; the program has taught hundreds of interested children how to train and care for oxen

program. This 4-H Working Steer program later spread to other counties in Maine and in 1970 to New Hampshire⁷⁴. In recent decades the 4-H working steer program enrolled 20-50 youth each year throughout New England⁷⁵.

New England, has for the last 100 years been the only region in the United States that boasts hundreds of teams of oxen and even more teamsters⁷⁶. The farmers in New England maintained their use of oxen after much of America had given up on them, although even there the numbers dropped after the American Civil War in the 1860's⁷⁷. After almost 400 years, the ox still can be found at work in the fields and the forests of New England. His presence today may seem unimportant, but it is unique. The skills of the teamsters who drive oxen can be attributed to their stubborn forefathers, who refused to give up the ox that had served them so well. Most importantly competitive events encouraged people to keep the tradition of working oxen tradition alive. Oxen can be seen

72 4-H 2021.

73 Winslow 2021.

74 Courser 2021.

75 Conroy 1986; Id. 1995b; Id.1996; Id. 2003; Id. 2007.

76 Id. 2015.

77 Kauffman/Liebowitz 1997,16.





Figure 5 – Ox pulling competitions have been held in New England for over 200 years

most often at country fairs, in parades or historic events in rural communities⁷⁸. Teamsters range in age from small children driving calf teams in 4-H events to adults competing in log skidding or plowing competitions and pulling contests with some animals exceeding 3000 pounds each⁷⁹. People from around the nation and the world have been found at such events trying to glean from these teamsters and their animals the skills that have long been lost in other regions.

In 2021, the New England states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island hosted at least 70 ox pulling events where ox teamsters competed to see who had the strongest oxen by pulling sleds (called stoneboats) loaded with concrete blocks. Winning teams pulled as much as 3 times the ox team's combined weight in 2-meter bursts, called elimination pulls. In Maine the most common contest is to pull a heavily loaded stoneboat as far as possible in either 3 or 5 minutes. This is called a distance pull and can occasionally be found in other New England states. In addition to pulling, there were at least 49 shows in the region where ox teamsters competed with their animals based either on training, the animal's response to the teamsters, the conformation of the animals and/or how well they were matched in color and size.

Methods and Materials

The internet and social networks such as Facebook has encouraged interested parties to create networks or groups related to personal interests. There were many state and regional Facebook groups related to oxen in the United States, which provided an opportunity to connect with the teamsters through electronic means⁸⁰. A short electronic survey developed using a software program called Qualtrics⁸¹ was employed as a simple way to gather data. Known owners of oxen who were not using social media were contacted through email or other

electronic means so that the anonymous survey could be passed onto them. The subjects were not compensated in any way and the study was approved by the University of New Hampshire's Institutional Review Board for the Protection of Human Subjects. The research subjects, all owners of oxen in the U.S.A. were asked to review a consent form online before taking the survey. They had the opportunity to decline to participate in the study. The ox owners were then asked to participate in a 10-minute survey about the use and status of oxen on their farms. The survey was available online from February 3, 2021, through March 12, 2021.

The questions posed to them were used to evaluate:

- 1) The geographic distribution of oxen in the United States
- 2) The current or intended uses of oxen
- 3) How many oxen or cattle being trained for work the participant owned in the last 12 months
- 4) The years of experience the participant had working with oxen
- 5) The age at which the oxen are trained
- 6) The hours the oxen were trained or worked per week
- 7) Where and/or how the participants learned to work oxen
- 8) Where the participants acquired the equipment they needed to work with oxen
- 9) The breeds the participants used as oxen
- 10) The gender of the participant

The data gathered through the survey were transferred to an Excel spreadsheet. They were analyzed using simple quantitative measures, such as the sum and average score of responses to the research questions. These data were then viewed in various forms of figures and tables, organized by geographic location, gender, and other data gathered. Any participants not from the U.S.A. or those who did not own or keep oxen were deleted from the data set.

78 Bryant 2010, 364.

79 Conroy 1995a; Id. 1996; Id. 2007.

80 Salmons 2016.

81 Qualtrics 2021.

The results reflect willing participants in this survey. It cannot be assumed this survey included all of the ox teamsters or oxen in the U.S.A.. There were people known who would not participate and others who may not have heard about or found this survey in the 5 weeks it was available in 2021. Therefore, this was not a census or a statistical estimate. It was a snapshot at one point in time with a group of willing and able participants who owned oxen in the U.S.A. in 2020-2021.

Results and Discussion

The geographic distribution of oxen in the United States

There were 423 participants who collectively kept 1791 oxen in 39 of the 50 states in the U.S.A. The eleven states where oxen were not reported were Hawaii, Nevada, Utah, Arizona, New Mexico, Iowa, Arkansas, Louisiana, Alabama, Florida and Delaware. Geographically the places not reporting any oxen were primarily from hot arid areas of the Southwest and hot humid states of the Southeast. Historically the American Southwest, which was a former Spanish colony was the first place oxen were used in North America and some Southeastern states were the last places outside New England where oxen were kept primarily for logging in the early 1900's⁸². In recent years oxen have been observed by the author on farms in Hawaii and Iowa, but there were no such participants in this survey.

The areas with the most oxen were, as expected in New England. Maine led the nation with 86 participants responding with 491 oxen. New Hampshire was ranked second with 65 teamsters who responded who kept a total of 253 oxen. Vermont ranked 3rd in the survey with 46 teamsters responding to the survey and 209 oxen.

82 Garrett 1998.

Fourth place was Connecticut with 38 teamsters responding and 194 oxen. Massachusetts ranked fifth with 30 teamsters responding owning 187 oxen, and the final state in New England, Rhode Island ranked 6th with 8 teamsters responding with a total of 24 oxen. Therefore, 273 teamsters responded to the survey from New England who owned collectively 1358 of the oxen counted in this survey. This represented 75.8 % of all of the oxen counted in the United States. The oxen and teamsters from New York state, adjacent to New England and frequent participants in New England ox events added 25 more teamsters and 76 more oxen. Together New York and New England accounted for 70 % of the ox teamsters and 80 % of the oxen counted in this survey. The notable areas with oxen outside the Northeastern U.S.A. were Virginia with 15 teamsters keeping 38 oxen and Michigan with 12 teamsters and 37 oxen.

What were the current or intended uses of oxen?

Farm work with oxen in the United States was ranked highest in response to this question. Teamsters responding to this survey⁸³ were allowed to choose numerous possible answers in the survey and 254 of the 423 or 60 % of the participants chose farm work. This represented 19.71 % of all responses to the question. This result may be surprising, as most of the oxen in the U.S.A. have been seen primarily at public events and in competitions. The answer lies largely in the fact that a teamster needs to find work for their oxen. Real work helps keep the oxen fit and responsive in the yoke. As it takes at least a small farm to support and keep oxen, they have been used for work such as spreading their own manure,

83 In the digital paper presentation (link at the end of this paper), the uses of oxen in the U.S.A. was expressed as a percentage of all responses. Teamsters were given the opportunity to choose multiple uses of oxen and there was a total 1307 responses to this question.

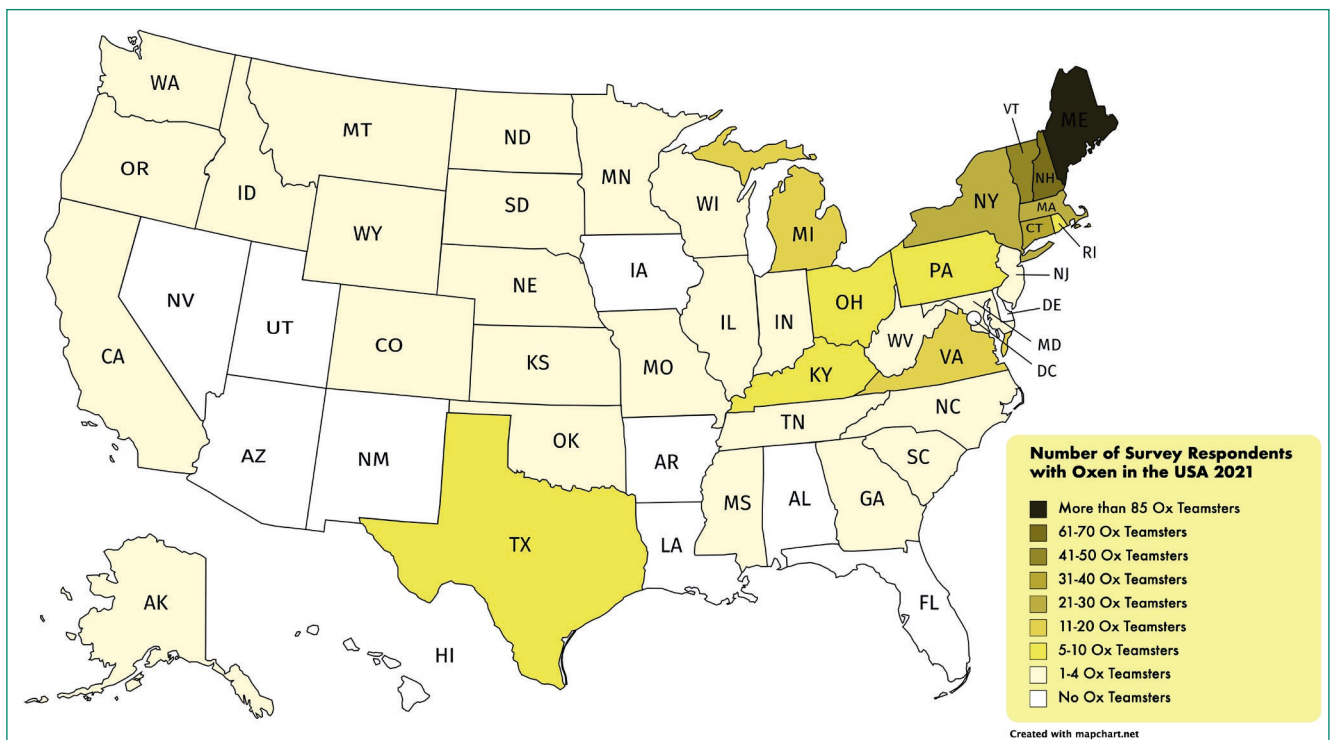


Figure 6 – United States Geographic Distribution of Ox Teamsters and Oxen in 2021, based on survey data



moving hay or other feed, and transporting things on a farm that might otherwise be done with a tractor. Some farmers also used oxen for fieldwork such as plowing, harrowing, and mowing hay.



Figure 7 – Farm work with oxen ranked as the most common activity for all teamsters in the survey, in part as a result of teamsters who compete with oxen also using them for real work as part of training and conditioning the animals for work

The second most common use for oxen was in exhibitions and parades, with 212/423 participants or 50 % of the teamsters in this survey choosing this activity. Oxen have been sought after for historic events, demonstrations and for holiday parades. Some teamsters may have chosen this answer instead of showing, as ox shows were also considered exhibitions. People who were not in the New England region take oxen out in the public even if they did not participate in formal competitions at agricultural fairs.

The third highest ranked activity or use of oxen was logging, with 188/423 participants accounting for 44 % of all responses from the ox teamsters. Logging has historically been a common use for oxen. The animal's power, speed and calm nature often made this an enjoyable activity. Similar to farm work, logging was an activity for training young cattle, keeping oxen fit, and providing real work for the animals. New England is a heavily forested region and logging has provided way to use the animals and reap some benefit. Oxen used in competition pulling, as well as showing, benefit from time in the forest. The ox teamster has a simple and enjoyable way of harvesting firewood, which has been a common supplemental heat source in many homes in the region. Lastly, a few ox teamsters have earned income from logging small forest plots, as well as removing salable lumber harvested on their own property.



Figure 8 – Demonstrations to the public were considered by some ox teamsters to be exhibitions of the animals and their abilities to do many kinds of work



Figure 9 – Logging with oxen ranked as the third most common activity with oxen in the U.S.A. – most of the oxen in the U.S.A. are found in New England, a heavily forested region

The fourth-ranked activity chosen by ox teamsters was recreation with 172/423 teamsters or 40.6 % of participants choosing this as a current or intended use of their oxen. For most ox teamsters in the U.S.A. oxen have become an optional animal on a farm over the last century. People choose to raise oxen; they do not need them. They are most often kept oxen for reasons other than making a living or providing the primary work necessary for agriculture. Recreational activities with oxen included creating trails in forests or fields, giving people rides in their wagons, sleds or carts, or simply having oxen in their fields and on their farm.



Figure 10 – Recreation with oxen ranked #4 and included enjoying the animals with friends and family, in New Hampshire 2019

The fifth-ranked activity with oxen was competition showing, with 164/423 ox teamsters or 38.7 % of participants showing their oxen at agricultural fairs and specialty events. This accounted for 12.72 % of all responses to

this question. Ox showing has been going on as long as there have been agricultural fairs and field days in New England. The focus of an ox show has generally been for teamsters to demonstrate good animal training, handling, feeding and care. The animals have been exhibited similar to beef or dairy cattle where they are presented clean, with their hair-clipped and horns polished. They were shown at any age and were also judged by an individual who also evaluated the conformation of the oxen as draught animals.



Figure 11 – Ox showing competitions can be found at agricultural fairs throughout New England – open shows were designed for both children and adults

The sixth-ranked activity or use of oxen was competition pulling, with 143/423 ox teamsters or 34 % of participants in the survey using their oxen in pulling contests. These numbers were lower than the author expected. This could be due to many people having no chance to compete in pulling contests due to their geographic location outside of New England. The low count could have also been due to people who pulled oxen not responding to the survey. Finally, it may have been due to ox teamsters who chose other activities in addition to this competition pulling, thereby logging and farm work had a greater total number of responses.



Figure 12 – At least 70 ox pulling competitions were held in New England in 2021; Two types of contests exist – one called a distance pull has the animals pull at least 125 %-200 % of their combined bodyweight as far as possible in 3 or 5 minutes; the second type of contest is considered an elimination contest where weight is added until the animals can no longer pull the sled 2 meters in one continuous motion



The activity that ranked seventh was Living History Farms or Reenactments, with 83/423 or 20 % of participants responding to this question. In other more developed countries without such a vibrant ox culture, it might seem that the only place people see or use oxen would be at living history farms. Yet, in the U.S. A. it was often ox teamsters raising oxen privately who were invited to living history farms to demonstrate their skills in handling and working the animals. These same ox teamsters often sold their well-trained teams to living history farms to be used in education and historic farm work.

The eighth-ranked use of oxen was “Other Uses”, with 55/423 or 13 % of participants choosing this option. This would include using oxen for any activity not previously listed. Some oxen can be ridden, other known ox teamsters used the oxen in animal therapy with adults or children, or they could just be kept to graze fields and keep them open. Finally, some teamsters train young oxen to sell as work animals, while others raise and work them for a few years and sell them for meat.

The ninth-ranked activity was using oxen in movies and television, with 18/423 or 4 % of participants choosing this as a way they have used oxen. Keeping historic animals and maintaining historic skills provided ox teamsters and their animals with unique opportunities, especially if the oxen were well trained and were the correct breed for the period the film or show was portraying.



Figure 13 – Working with oxen in movies provided a glimpse into the past on the Oregon Trail in Manhattan, Kansas – for Author Andrew Conroy 1994

Years of Experience the Participant had Working with Oxen

The years of experience each participant had was an excellent indicator that working with oxen was not only older teamsters clutching to a cultural practice that was disappearing. Rather it showed that there has been sustainability and interest in maintaining the skills needed for working with oxen in the U.S.A.. It also indicated that people were being encouraged to learn how to work oxen across all age groups and experience levels. Finally, the data showed that there are as many people just beginning to use oxen as there are people with many years of experience.



Figure 14 – Ox Teamsters varied in age, the only requirement being mobile and committed to working the oxen

Years of Experience	Percentage of Total
0-1	12.79
1-5	18.72
5-10	15.53
10-15	13.70
15-20	9.13
20-30	12.33
30-40	7.31
More than 40 years	10.50

Table 1 – The years of experience the participant had working with oxen

Where and/or how Ox Teamsters Learned to Work Oxen

Ox Teamsters were asked to answer all the ways they learned to work with oxen. Some teamsters learn to work with the animals using a variety of resources. Teamsters training oxen in regions outside New England any often lack mentors, or nearby teamsters. These teamsters had to rely on sources such as books, videos and the internet. The training of oxen by those who were from families who have had oxen, or who were located in a region with oxen and attend events, learn primarily from family and friends. In the 4-H youth working steer program many young people, even if they were from a family or region with oxen, learned to work oxen from adult leaders. Peers their own age encouraged and competed with them at their level. The 4-H program has been designed to allow youth to show based on both their age and skill level. For example, first-year youth competed only against others with the same skill set. While competition can discourage some youth, it also set a standard of achievement and training with adults guiding and encouraging the children in a formal setting⁸⁴.

84 Conroy 1986; Id. 2007.



Figure 15 – Learning to train oxen has for generations often been a family affair, passed down through the family

Where and/or How did Ox Teamsters Learn to Train and Work Oxen	Percentage of Total Responses
Family	13.87
Friends or Acquaintances	18.98
4-H	9.89
Association or Organizations related to Oxen	10.42
Living History Farms	2.65
Hands-on Workshops	6.10
Videos	8.49
Books	13.27
Magazines	3.58
Internet	10.22
Other	2.52

Table 2 – Where and/or how the participants learned to work oxen

Where Ox Teamsters Get Equipment to Work with Oxen

Almost 50 % of ox teamsters either made their own yoke or found someone to make one for them. This has been a common practice in New England. Friends with oxen or family members passed yokes on or sold them when they decided they were not going to keep oxen. Ox yokes can last for decades and the neck yoke can be cared for and be used in teams of the same size for multiple generations.

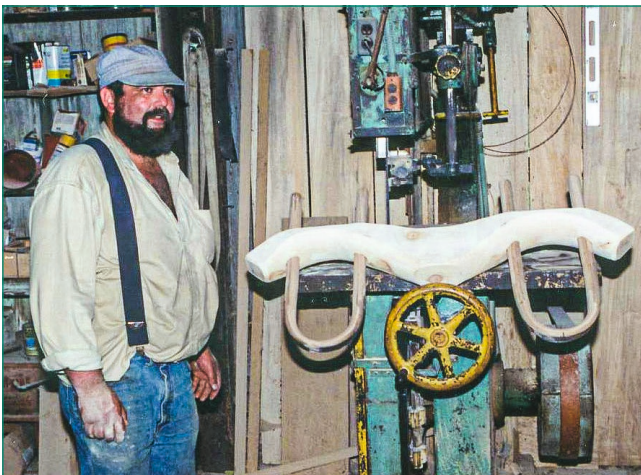


Figure 16 – Making ox yokes by teamsters such as Bud Kluchnik from Maine required a passion for oxen and the wood working tools and skills necessary to create a desirable yoke

Many yoke makers were also ox teamsters with the skills to make yokes as a part-time business. More recently a few craftsmen have realized there is a demand for ox yokes and related equipment outside of New England. These craftsmen have created specialized businesses that cater to buyers who need specific items and ship them across the country or even the world.

Where did Ox Teamsters Acquire Necessary and Related Equipment?	Percentage of Total Responses
Handed Down from Family	15.58
Friends or Acquaintances	17.61
Borrow Yokes and Related Equipment	5.87
Make their Own Yokes and Related Equipment	21.44
Buy Yokes and Equipment from Individual Craftsman	26.19
Purchase Yokes and Other Equipment from Specialized Businesses	4.97
Purchase Yokes and other Equipment from Antique Auctions and Estate Sales	5.53
Other	2.82

Table 3 – Where did ox teamsters get equipment to work with oxen

Age At Which Oxen Were Trained

As described in the early section on the history of oxen in New England, for hundreds of years ox teamsters have been encouraged to train oxen young. The result of acclimating young cattle to be handled, haltered, and lead reduces the stress on the animal during training. It also increases the ease with which they are trained. Cattle can be trained at any age, but the effort, skill and time required to train older animals are often discouraging, without the kind of opportunities many early teamsters had to tire them out on long treks or yoke them to older trained oxen. While training them at less than 2 months old seems extreme, much of this early training is desen-



Figure 17 – The vast majority of oxen in the U.S.A have been trained as calves, following a long tradition in New England which yielded calmer and easier animals to work with

Age oxen are trained	Percentage of Teamsters
Less than 2 months old	56.87
2-6 months old	32.77
6-12 months old	6.75
Over 12 months old	3.61

Table 4 – The ages the oxen are trained



sitizing the calves to things that might scare them and teaching them to follow and respect directions from humans. Finally, training calves has also been long known to be safer for the children who work with and train oxen.

Hours Oxen Were Trained or Worked per Week

This question was posed as the hours spent per week working when they are in use. This was because there are seasons of the year when the animals may not be used. For example, people who show or pull oxen spend less time in the winter working with oxen than they would during the other months of the year. This was largely due to oxen being a choice or hobby rather than a necessity. The amount of time oxen were worked in 2021 was far less than they would have been worked when their labor was historically required on a farm or on a cross-country trek. The more time oxen spend in the yoke, performing real work, the greater their responsiveness to their teamster. Both teamster and animal benefit from a relationship based on working together in a comfortable and productive environment. The teamsters with the higher number of hours of work per week were those who keep pulling oxen, as the animals need to be trained and conditioned like an athlete to pull heavy loads.

Hours worked per week	Percentage of Teamsters
Less than 1 hour	3.63
1-2 hours	13.80
2-4 hours	16.95
4-6 hours	19.61
6-8 hours	15.50
8-12 hours	14.53
12-15 hours	5.81
More than 15 hours	10.17

Table 5 – Hours per week the ox teamster typically works the oxen

Cattle Breeds used for Oxen

The breeds the participants used as oxen were many, with the Milking Shorthorn, Holstein, Chianina and Brown Swiss accounting for almost 42 % of all cattle in the survey. As noted below the Holstein and Chianina were also frequently used for crossbreeding. Holsteins are the most common dairy cattle in the U.S.A. Ox Teamsters have persuaded some dairy farmers to breed Holstein cows to other more desirable breeds for oxen such as the Chianina or Devon resulting in bull calves on a dairy farm that are destined to be oxen bringing a higher price.

Breed of Cattle used for Oxen	Percentage of Total Oxen in Survey
Milking Shorthorn	11.86
Holstein- (Friesian)	10.90
Chianina	9.56
Brown Swiss	9.32
Holstein crossbreed	6.30
Chianina crossbreed	6.17
American Milking Devon	5.08
Hereford crosses	4.72
Milking Shorthorn crosses	4.36
Jersey	3.87
Multiple Mixed Breeds	3.39
Hereford	2.91
Dexter	2.42
Dutch Belted	2.06
American Milking Devon crosses	1.94
Ayrshire	1.82
Normande	1.33
Texas Longhorn	1.21
Highland (Scottish Highland)	0.97
Kerry	0.61
Pineywoods	0.48
Brahman	0.36
Other	8.35

Table 6 – The breeds of cattle used for oxen



Figure 18 – The Chianina breed has often been crossbred with Holstein cows yielding a large, all black, deeper bodied and calmer ox – both seen here at the Fryeburg Fair, in Maine 2017



Figure 19 – Any breed of cattle can compete in shows in New England.; these are organized into classes by age or weight, and they must have horns

Many breeds are kept as oxen in the U.S.A. From the Chianina, one of the largest breeds in the world to the Dexter one of the smallest breeds, ox teamsters have a variety of reasons for keeping specific breeds. For example, the intended uses of the animals, the temperament of the breed, its size or its regional availability are all considered. One common trait among all the breeds listed would be that they have horns. Polled breeds can be worked as oxen, but they have not been allowed in the show or pulling competitions in New England. Only two breeds have been specifically selected for their draught characteristics. One was the American Milking Devon, which was historically known as the North Devon and long noted for their smaller size, speed and temperament. The Chianina is the second, which has been bred to keep the original form, size, and color of the Italian Chianina.

The American version which is now polled, mostly black, shorter-legged and thicker as seen in the United States' beef cattle industry have been avoided.

Chianina oxen have dominated the ox pulling events and this has been a transformation over the last 20-30 years. The Chianina has become dominant not only due to the size of its frame size, but also its leaner more athletic build. These traits combined with the Chianina's temperament have given them an advantage in the pulling competition at any age or size. Milking Shorthorns continue to be the desired breed in the New England states in the showing and exhibition of oxen. The dairy breeds are often easy to find and relatively inexpensive, as the pure dairy bull calves have little value. Only Milking Shorthorn breeders and the farmers crossbreeding Holsteins find that the resulting male offspring sold to ox



Figure 20 – Men outnumber women in total number of teamsters in the United States, however the gender representation has changed dramatically in the last 50 years; Men continue to be seen more commonly in pulling competitions, but women do compete and are almost equal in number in any other activity



teamsters bring a higher return than selling them on the common market as days-old bull calves. The 8.35 % of teamsters who reported using breeds other than those listed reported they have kept breeds such as the Gelbvieh, Simmental, Charolais, Pineywoods, Guernsey, Randall Lineback, Pinzgauer and Gloucester type American Lineback. Many of the larger beef breeds have been most often used in crosses. The American and the Randall Lineback, as well as the Pineywoods have been the more commonly used “other” breeds that should have been included as a choice in the survey.

Gender of the Ox Teamsters

The genders of the ox teamsters were 59 % men and 40 % women, with 1 % reporting as other. In New England men have always been the dominant gender involved in ox pulling. Showing oxen competitively on the other hand, both in the youth or 4-H shows has had a more balanced proportion of men to women. A job historically linked to men, the ox teamsters in New England were in this survey well represented by almost equally by men and women.

State	% Women	% Men	% Other Choice
Maine	45	55	
New Hampshire	34	64.5	1.5
Vermont	50	50	
Connecticut	31.5	68.5	
Massachusetts	20	73	7
New York	28	72	
Virginia	47	53	
Michigan	33	59	8
Rhode Island	38	62	

Table 7 – Gender breakdown by States with the highest number of ox teamsters

Conclusion

Oxen can be found in every New England state and their current numbers have been holding steady or growing slightly each year⁸⁵. With hands-on workshops, books, magazines, videos and the internet, sharing knowledge about training oxen has never been easier. To his followers, the ox has always been slow, strong, and dependable⁸⁶. Teams in the United States continue to use the simple wooden neck yoke and are driven with a small stick called a goad or whip, as has been done for centuries⁸⁷. The training techniques and commands used to control oxen have also remained unchanged for centuries. With the commands Get-up, Whoa, Gee, Haw, and Back the ox team can still be maneuvered anywhere their power is needed⁸⁸. The ox teams found in the United States today are a stark reminder of the challenges faced by the early settlers of the United States. The tradition of working cattle, a distinctive part of New England’s cultural past has been sustained. The skills that encompass training oxen appear likely to be passed along to other regions and generations for many years to come.

85 Conroy 1995a; Id. 1996; Id. 2005; Id. 2007.

86 Dangerfield 1821.

87 Skinner 1844, 164; Walden 1933, 116.

88 Skinner 1844, 161.

Bibliography

- 4-H URL:** <https://4-h.org/about/history/> [12-11-21].
- Ahmed 2016** D. L. Ahmad, Success Depends on the Animals: Emigrants, Livestock, and Wild Animals on the Overland Trails, 1840–1869 (Reno 2016).
- Ahmed 2019** D. L. Ahmad, The Oxen Were the Unheralded Heroes of America’s Overland Trails. URL: <https://www.zocalopublicsquare.org/2019/08/11/the-oxen-were-the-unheralded-heroes-of-americas-overland-trails/ideas/essay/> [29-11-21].
- American Agriculturist 1855** Shaping Cattle Horns. American Agriculturist, Volume XIV, No. 11/November, 1855, 37.
- American Agriculturist 1857** Hints on Ox-Yokes. American Agriculturist, Volume XVI, No. 3/December, 1857.
- American Agriculturist 1871** Trial of Working Oxen. American Agriculturist, Volume XXX, No. 12/December, 1871, 1.
- American Agriculturist 1872** Ox Teams vs. Horses. American Agriculturist, Volume XXXI, No. 9/September, 1872.
- American Agriculturist 1873a** A Key for an Ox Bow. American Agriculturist, Volume XXXII, No. 12/December, 1873, 456.
- American Agriculturist 1873b** A Moving Bee. American Agriculturist, Volume XXXII, No. 5/May, 1873, 1.
- American Agriculturist 1874** An Improved Ox-Yoke. American Agriculturist, Volume XXXIV, No. 7/July, 1874, 256.
- American Agriculturist 1881a** How to Make an Ox Yoke. American Agriculturist, Volume XXXI, No. 3/March, 1881, 92.
- American Agriculturist 1881b** Devices for Bending Ox Bows. American Agriculturist, Volume XXXI, No. 12/December, 521.
- Andrews 1997** R. Andrews, This Was Logging (Atglen 1997).
- Bidwell 1921** P. W. Bidwell, The Agricultural Revolution in New England. The American Historical Review 26, no. 4, 1921, 683-702.
- Bryant 2010** Sh. Bryant, Draft Animal Power, Journal of Agricultural & Food Information, 11:4, 2010, 360-366.
- Carlton 1939** W. R. Carlton, New England Masts and the King’s Navy. The New England Quarterly 12, no. 1, 1939, 4-18.
- Cecil 2020** Ch. Cecil, Bull Trains to Deadwood (Charleston 2020).
- Collins 2010** E. J. T. Collins, The latter-day history of the draught ox in England, 1770–1964. Agricultural History Review 58, no. 2, 2010, 191-216.
- Conroy 1993** D. Conroy, The Future of Draft Animals on Historic Farms, in: in: D. Reid/K. Yellis (eds.), Proceedings of the 20th Anniversary Meeting of The Association of Living History Farms and Museums, June 17-24, 1990. Vol. XIII (Sante Fe 1993).
- Conroy 1995a** D. Conroy, Ox Pulling. Rural Heritage Magazine 20/2, 1995, 30-33.
- Conroy 1995b** D. Conroy, 9 - Year Old Ox Teamster. Rural Heritage Magazine 20/4, 1995, 28-30.
- Conroy 1995c** D. Conroy, Advanced Training Techniques for Oxen, In: Tiller’s International (ed.), Tiller’s TECHGUIDE (Kalamazoo 1995).
- Conroy 1996** D. Conroy, New England Oxen Events. Rural Heritage Magazine 21/ 3, 1996, 72-74.
- Conroy 1997a** D. Conroy, Understanding and Training Cattle, Part I. Draught Animal News 26, 1997, 33-39.
- Conroy 1997b** D. Conroy, Understanding and Training Cattle, Part II. Draught Animal News 27, 1997, 33-36.
- Conroy 2002** D. Conroy, Using Oxen for Farm Work and Transportation, in: B. Hazeltine (ed.), The Field Guide to Appropriate Technology (Cambridge 2002).
- Conroy 2004a** D. Conroy, Interpreting Oxen in Early America. Rural Heritage Magazine 29/5, 2004, 80-83.
- Conroy 2004b** D. Conroy, Ox Yokes: Culture, Comfort and Animal Welfare. World Association for Transport Animal Welfare and Studies (TAWs). Common ground: moving forward with animals TAWs/TAA/BVA workshop held 15 April 2004, Silsoe Research Institute, UK. URL: <http://www.taws.org/TAWS04-Conroy-040419-A4-all.pdf> [05-01-22].
- Conroy 2004c** D. Conroy, Ox Yokes and Comfort. Rural Heritage Magazine 29/4, 2004, 71-74.

- Conroy 2005** D. Conroy, Oxen in New England, in: B. Feintuch/ D. H. Watters (eds.), *The Encyclopedia of New England Culture* (London 2005).
- Conroy 2007** D. Conroy, *Oxen: A Teamster's Guide to Raising, Training, Driving & Showing* (North Adams 2007).
- Conroy/Barney 1986** D. Conroy/D. Barney, *The Oxen Handbook* (LaPorte 1986).
- Conroy/Huppe 2003** D. Conroy/T. Huppe, *Training Oxen*. URL: <https://www.youtube.com/watch?v=ul2PFdDeJ2k> [05.01.22].
- Course 2021** G. B. Course, *Personal Interview* (4-12-21).
- Cowan 2003** M. M. Cowan, *Timberr...: A History of Logging in New England* (Minneapolis 2003).
- Dangerfield 1821** W. A. Dangerfield, *Use of Oxen*. *The American Farmer* 1821 II/37, 1824.
- Danhof 1969** C. H. Danhof, *Change in Agriculture: The Northern United States, 1820-1870* (Cambridge 1969).
- Dunmire 2013** W. W. Dunmire, *New Mexico's Spanish Livestock Heritage: Four Centuries of Animals, Land, and People* (Albuquerque 2003).
- Dunmire 2021** W. W. Dunmire, *Spanish Trade, Technology, and Livestock*, in: W. W. Dunmire (ed.) *Gardens of New Spain: How Mediterranean Plants and Foods Changed America* (Austin 2021), 147-162.
- Dunn 1988** H. Dunn, *Transportation in Florida from Oxen to Airplanes: A Photographic Essay*. *Tampa Bay History* 10/2, Article 4, 1988.
- French 1911** G. French (ed.), *New England, what it is and what it is to be* (Boston 1911).
- Garrett 1998** M. A. Garrett, *Evidence on the Use of Oxen in the Postbellum South*. *Social Science History* 22/ 2, 1998, 225-249.
- Gregg 1954** J. Gregg, *Commerce of the Prairies* 17 (Oklahoma 1954).
- Hubka 2004** Th. C. Hubka, *Big House, Little House, Back House, Barn: The Connected Farm Buildings of New England* (Lebanon 2004).
- UNH-IRB 2021** University of New Hampshire Institutional Research Board. URL: <https://www.unh.edu/research/institutional-review-board-protection-human-subjects-research-irb> 2021 [11-12-21].
- Johannsen 2011** N. Johannsen, *Past and present strategies for draught exploitation of cattle*, in: U. Albarella/A. Trentocoste (eds.), *Ethnozoarchaeology* (Oxford 2011), 13-19.
- Kaufman/Liebowitz 1997** K. D. Kauffman/ J. J. Liebowitz, *Draft animals on the United States Frontier*. *Overland Journal* 15/2, 1997, 13-26.
- Klinckenborg 1993** V. Klinckenborg, *If It Wasn't for the Ox, We Wouldn't Be Where We are Today*. *Smithsonian Magazine*, 1993 .
- Liebowitz 1992**. J. J. Liebowitz, *The Persistence of Draft Oxen in Western agriculture*. *Material Culture Review*, 1992, 29-37.
- Marcy 2006** R. B. Marcy, *The Prairie Traveler: The 1859 Handbook for Westbound Pioneers* (North Chelmsford 2006).
- Meeker 1922** E. Meeker, *Ox-team days on the Oregon Trail* (Chicago 1922).
- Periam 1884** J. Periam, *The American Farmer's Pictorial Cyclopedic of Live Stock ...: Being Also a Complete Stock Doctor ... United States* (St. Louis/New York 1884).
- Pike 1967** R. Pike, *Tall Trees, Tough Men* (New York 1967).
- Qualtrics 2021** Qualtricssm. URL: <https://www.qualtrics.com/> [11-12-21].
- Rodrigues et al. 2017** J. B. Rodrigues/P. Schlechter/H. Spychiger/R. Spinelli/N. Oliveira/T. Figueiredo, *The XXI century mountains: sustainable management of mountainous areas based on animal traction*. *Open Agriculture* 2/1, 2017, 300-307.
- Russell 1982** H. S. Russell, *A Long Deep Furrow: Three Centuries of Farming in New England* (Hanover 1982).
- Salmons 201** J. Salmons, *Doing Qualitative Research Online*. SAGE Research Methods. Sage Publications Ltd. URL: <https://methods.sagepub.com/book/doing-qualitative-research-online> [29-11-21].
- Sheldon 1988** A. Sheldon, *Yankee Drover* (Hanover 1962).
- Skinner 1844** J. S. Skinner, *Essay on the advantages to be derived from a more extended Use of Oxen*, in: W. Youatt (ed.), *Every Man His Own Cattle Doctor* (Philadelphia 1844), 143-167.
- Sloane 1962** E. Sloane, *Diary of an Early American Boy - Noah Blake 1805* (Mineola 1962).
- Smithcors 1958** J. F. Smithcors, *Animal Disease in Colonial America*. *Bulletin of the History of Medicine*, 1958, 171-176.
- Strickland 1971**. W. Strickland, *Journal of A Tour In The United States of America 1794-1795* (New York 1971).
- Townson et al. 2007** L. Townson/J. Carrabba/A. B. Conroy, *4-H Working Steer Manual* (New Hampshire 2007).
- Walden 1933** A. T. Walden, *Harness and Pack* (New York 1933).
- Welsch 1988** J. Welsch, *Defending oxen: A reassessment of their role in American agriculture*, in: *American Minor Breeds Conservancy* (ed.), *Exploring Our Livestock Heritage: Proceedings of the 1988 Annual Meeting of the American Livestock Breeds Conservancy* (Pittsboro/Ithaca 1988).
- Welsch 1993**. J. Welsch, *If the Worcester boys want to see cattle haul, they must come to Kennebec: The Trial of Working Oxen as an Expression of Regional Agricultural Values, 1818-1860*, in: *Dublin Seminar for New England Folklife* (ed.), *Annual Proceedings Dublin Seminar for New England Folklife 1993* (Boston 1993).
- Welsch. 1994** J. Welsch, *A Real Yankee Always Likes to See A Good Pair of Oxen Pull: The Development and Reemergence of a Regional Agricultural Tradition* [M. A. Thesis, University of North Carolina, Chapel Hill 1994].
- Wilson 2003** R. T. Wilson, *The environmental ecology of oxen used for draught power*. *Agriculture, ecosystems & environment* 97/1-3, 2003, 21-37.
- Windham County Agricultural Society (2012)** URL: <https://www.wc-as.org/history.html> [10-12-21].
- Winslow 2021** M. Winslow, *Personal Interview* (04-12-21).

List of Figures

Title (A pair of mature Chianina-Holstein cross oxen, using the American Style Neck Yoke with wooden bows in New Hampshire, USA) – A. B. Conroy.

Figure 1 – US Library of Congress Collection – John C. H. Grabill/Grabill Collection 1891, Society, URL: <https://www.loc.gov/collections/grabill/?fa=original-format:photo,+print,+drawing> [01-02-22].

Figure 2 – J. A. French/Keene Public Library/Cheshire County Historical Society, URL: [https://commons.wikimedia.org/wiki/File:Cheshire_County_Agricultural_Fair,_Keene,_New_Hampshire_\(4560108671\).jpg](https://commons.wikimedia.org/wiki/File:Cheshire_County_Agricultural_Fair,_Keene,_New_Hampshire_(4560108671).jpg) [01-02-22].

Figure 3 – *Ibid.*, Society, URL: [https://commons.wikimedia.org/wiki/File:Cheshire_County_Agricultural_Fair,_Keene,_New_Hampshire_\(4560108699\).jpg](https://commons.wikimedia.org/wiki/File:Cheshire_County_Agricultural_Fair,_Keene,_New_Hampshire_(4560108699).jpg) [01-02-22].

Figure 4-20 – A. B. Conroy.



Author info

Andrew B. Conroy

Professor of Animal Science and Sustainable Agriculture
University of New Hampshire

E-Mail: oxwoodfarm@aol.com

Digital paper: <https://youtu.be/Jr9c41YCck0>

