

# Sterling College degree program “Sustainable Agriculture and Draft Animal Power Systems”

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## Abstract

Agriculture education programming in higher education systems within the United States is functionally void of draft animal powered systems curriculum. Interested students seeking such knowledge are limited to an increasingly shrinking weekend workshop type experience or are lucky enough to be accepted into various short-long range apprenticeships at living history museums. Sterling College, Craftsbury, VT, has maintained a central focus on draft animal powered curriculum since its inception and continues to offer a two-year concentrated program of study leading to a minor in draft animal powered systems. In 2019, the College's programming expanded into Kentucky and formed a partnership with The Berry Center in Henry County, KY; this two-year degree completion format has allowed the expansion of the draft animal powered systems minor as the program scales out its reach. One important feature of the programming is the incorporation of horses, mules, and draft cattle allowing students the opportunity to experience and compare multiple systems side-by-side. The curriculum balances background theory with authentic work experiences as students gain valuable hands-on training in aspects of draft animal powered farm planning, animal husbandry, draft animal powered farming and forestry systems, and the economics (both financial and social) of incorporating draft animals into one's enterprise.

## Résumé

La programmation de l'enseignement agricole dans les systèmes d'enseignement supérieur aux États-Unis est fonctionnellement dépourvue de programmes sur les systèmes de traction animale. Les étudiants intéressés qui cherchent à acquérir de telles connaissances sont limités à une expérience de type atelier de week-end de plus en plus réduite ou ont la chance d'être acceptés dans divers stages de courte ou longue durée dans des musées d'histoire vivante. Le Sterling College, Craftsbury, VT, a maintenu un accent central sur les études des systèmes de traction animale depuis sa création et continue à offrir un programme d'études concentré de deux ans menant à une spécialisation en systèmes de traction animale. En 2019, la programmation du collège s'est étendue au Kentucky et a formé un partenariat avec le Berry Center dans le comté de Henry, KY ; ce format d'obtention de diplôme en deux ans a permis l'expansion progressive de cette spécialisation sur les animaux de trait. Une caractéristique importante du programme est l'incorporation de chevaux, de mules et de bovins de trait, ce qui permet aux étudiants d'expérimenter et de comparer plusieurs systèmes côte à côte. Le programme équilibre la théorie de base avec des expériences de travail authentiques, les étudiants acquérant une formation pratique précieuse sur la planification d'une exploitation agricole utilisant des animaux de trait, l'élevage, les systèmes agricoles et forestiers en traction animale, et l'économie (financière et sociale) de l'intégration des animaux de trait dans une entreprise.

## Kurzfassung

Die Lehrpläne für die landwirtschaftliche Ausbildung an den Hochschulen in den Vereinigten Staaten enthalten praktisch keine Lehrinhalte über Zugtiersysteme. Interessierte Studierende, die solche Kenntnisse erwerben wollen, müssen sich auf eine immer kleiner werdende Zahl von Wochenend-Workshops beschränken oder haben das Glück, in verschiedenen kurz- und langfristigen Lehrgängen in Living History Museen aufgenommen zu werden. Das Sterling College in Craftsbury, VT, hat seit seiner Gründung einen Schwerpunkt auf den Unterricht in der Zugtierhaltung gelegt und bietet daneben ein zweijähriges konzentriertes Studienprogramm an, das zu einem Abschluss in der Zugtierhaltung führt. Im Jahr 2019 wurde das Programm des Colleges auf Kentucky ausgeweitet und eine Partnerschaft mit dem Berry Center in Henry County, Kentucky, geschlossen. Dieses zweijährige Studienformat hat die Ausweitung des Nebenfachs für Zugtiersysteme ermöglicht, da das Programm seine Reichweite vergrößert. Ein wichtiges Merkmal des Studiums ist die Einbeziehung von Pferden, Maultieren und Zugrindern, die den Studierenden die Möglichkeit geben, mehrere Konzepte Seite an Seite zu erleben und zu vergleichen. Der Lehrplan bietet ein ausgewogenes Verhältnis zwischen theoretischem Hintergrundwissen und authentischen Arbeitserfahrungen, wobei die Studierenden eine wertvolle praktische Ausbildung in Aspekten der Planung von landwirtschaftlichen Betrieben mit Zugtieren, der Tierhaltung, land- und forstwirtschaftlichen Anwendungen von Zugtieren und hinsichtlich der wirtschaftlichen (sowohl finanziellen als auch sozialen) Aspekte der Integration von Zugtieren in den eigenen Betrieb erhalten.

## Resumen

El currículo de los estudios agrícolas los sistemas de enseñanza superior de Estados Unidos carece funcionalmente de planes de estudio sobre sistemas de tracción animal. Los cursos dedicados a estos temas y ofrecidos a los estudiantes se limitan por ejemplo a taller de fin de semana o cursos de corta y larga duración en museos vivos de historia. El Sterling College, en Craftsbury, VT, la tracción animal se ha mantenido como tema central en su plan de estudios desde su creación y sigue ofreciendo un programa de estudio concentrado de dos años que conduce a una especialización en sistemas de tracción animal. En 2019, los programas de la universidad se expandieron a Kentucky, formando una asociación con The Berry Center en el condado de Henry, KY. Este formato de finalización de grado de dos años ha permitido la expansión de los sistemas menores de tracción animal. Una característica importante del programa es la incorporación de caballos, mulas y ganado de tiro, lo que permite a los estudiantes la oportunidad de experimentar y comparar múltiples sistemas simultáneamente. El plan de estudios equilibra la teoría de fondo con experiencias de trabajo auténticas, ya que los estudiantes adquieren una valiosa formación práctica en la planificación de las explotaciones agrícolas con animales de tiro, la cría de animales, los sistemas agrícolas y forestales y prácticas en economía tanto social como empresarial.



Sterling College embraces the attributes that make it unique – small enrollment, rural location, field programs, and real work – and welcomes students to campus under a creative, multifaceted plan that values both the health and welfare of its students and the integrity and quality of the Sterling experience.

The "Sustainable Agriculture and Food Systems degree coupled with Draft Animal Power Systems minor" program is designed to introduce students to cattle, horses and mules in work environments. We start off with a breadth class that is focused strictly on driving principles.



**Figure 1** – Teaching teamster Rick Thomas of the Wendell Berry Farming Program in Port Royal, KY, USA with American Milking Devon calves Dan and Jessie; the pair will be used to teach students draft cattle management and usage on the farm and woodlands

I'm currently located at our satellite campus in Henry County, Kentucky, where we are part of the Wendell Berry Farming Program. Here our stable consists of a team of mules, a workhorse, a team of oxen and a pair of working steers, so during that first course students are introduced to the driving principles associated with working cattle, working mules, working teams, working singles, working three abreast – all the different configurations that are going to be useful as we progress through our curriculum. I also enjoy having young animals in the stable, so that students can experience training and training systems.

Once that good foundation is built, we put students into context. Something I call "teaching in context" or using meaningful work to guide our curriculum and so during their second semester we'll begin to work in the forest, we'll begin to work in the fields, perhaps mowing and picking up hay and we'll work in the gardens.

As we progress into our third semester their skill set has improved to where they can do more difficult manoeuvres, more difficult tactics are needed so, for instance, we might be on a logging job, where the ground is very steep and so we need to introduce steep terrain logging strategies, as an example. We are very interested in applying as much non-chemical, no-till cultivation practices as possible in a market garden setting and so we are constantly trying to problem solve different ways that we can use our draft animals to maintain the soil health in our garden environment.

As we're out in the field, mowing hay or clipping pastures, being able to troubleshoot a faulty mowing machine is something that comes to mind as an advanced technique that these students need to master, if they're going to get involved in draft animal farming. These three classes are progressive in nature, they build upon skill sets, so that students are allowed to work through the program at their own pace, even though we move together as a group each student brings their own skill set and their own rate of learning and so being a small group and being involved in the type of education that Sterling is known for, which is very hands-on, very experiential – we can make those changes, so that those students can continue to move forward at a pace that's comfortable for themselves.

The driving principles class and the applied power systems classes are core, but happening around the edges of those three courses, are more specific classes in things like restorative forestry, crop production systems, holistic livestock husbandry, soil science – so this larger educational platform is happening around this core of power, which from my perspective is this amazing opportunity for them to really explore draft animals as a key component to modern farming and forestry systems.



**Figure 2** – Molly and Mindy, Belgian mules, guide students as they acquire the skills necessary to manage woodlands with draft animals

Once students graduate, they find work as farriers. I'm a trained farrier and so I teach a farrier science class, so several students have gone on to pursue advanced work in farrier science and are now working as farriers. We have cattle hoof trimmers, we certainly have students who have graduated from the program who are working in the forest industry, we have farmers and we have many students who are employed at living history museums now.

I ask a question to the students at the beginning of the first semester, which goes something like:

"What is the role of draft animals in 21st century farming or forestry?" – something like that and they answer it from a position of newness – they don't have a lot of experience and so there's a lot of romance that comes into that essay at that time. I ask that very same question at the end of the two-year program and the answers are very refined, some of them look at draft animals and simply cannot imagine employing them on their farm, others look at draft animals and can't imagine not having them on their farm. So that is one of my favorite assignments, to be able to watch the progression of thought through the students' mind as they've gained some experience. They've spent some time with these animals, they've learned what they can do and they've learned what they can't do and it all comes back around to this notion of scale I think that's something that we talk a lot about here in our classes.



**Figure 3** – Henry and Zeke, Brown Swiss steers, are being re-schooled into working cattle; training a community of teamsters is one of the primary goals of the Wendell Berry Farming Program, utilizing young stock creates a perfect learning environment

When I'm talking about scale with students and this whole notion of right-sizing a farm, so that draft animals can work both efficiently and profitably, I can't help but talk about the notion of pace and what it is like working at a human pace.

Starting a farming career which is actually what many of our students are doing – they have no background in farming, they're new to every aspect, they may have grown a kitchen garden, they've not done anything at scale, or not done much at scale, they've not done too much with forestry and so this is all very early career. The whole notion of pace is something that they don't have a lot of experience with yet. I find that working with draft animals puts a constraint, a welcomed constraint, on how much work we can do in a day. It is those limits that I enjoy exploring in our discussions. Are those limits bad? What does an agricultural system or a forestry system without limits look like? Well, that's not hard to investigate since it's our current system here in the United States.

Currently, I'm teaching in Kentucky (USA) as part of the Wendell Berry Farming Program of Sterling College. Here, the Wendell Berry Farming Program of Sterling College offers a tuition-free junior and senior year farming curriculum focused on ecological management of livestock, pasture, and forestry using draft animals and other appropriately scaled mixed power systems. Inspired by the lifework of farmer and writer Wendell Berry, and designed in partnership with The Berry Center, in New Castle, Kentucky, the program serves undergraduate students from Kentucky and elsewhere who intend to farm. The curriculum is focused on the survival of small and mid-scale farms. We study how to be profitable within ecological bounds. We work to cultivate a culture that supports farming that is inclusive, equitable, parity-based, and resilient. Our goal is unique in agricultural education: to interweave a hands-on, liberal arts, farming curriculum with a diversified mid-scale livestock farm using appropriately scaled mixed power systems (i.e., draft and combustion power). Our approach to farming is modestly scaled, humble, and attuned to rural places. The land is ideally suited for grass farming and a diversity of livestock: beef cattle, sheep, draft animals, and pastured poultry, a combination that provides the most potential for farm income. The farm has 50 acres of woodland that benefit from a “worst-first” management plan, which will improve the health of the woods while providing lumber, a small income, and a classroom. The use of draft animals provides a low-cost source of power. The work of mules, oxen, and horses is combined with other forms of appropriately scaled combustion technology. The WBFP uses grass, livestock, and forest like three legs of a stool in a model that is biologically based and economically viable.

Something that strikes me every year, when we take a person who has no experience working in the forest, for instance, and we take in simple tools such as an axe and a cross-cut saw and a team of oxen and we then fell some trees – we do things with that wood, we work with those primary resources, we take those primary resources and we turn them into objects that we then use to make other things with. The process of creating and being able to think and hear one another work, the conversation that happens, the team, the sounds of the team, the yoke creaking, the chains dragging the saw – it's a





**Figure 4** – Part of our woodland management strategy is to utilize all the products we harvest; here, low grade red oak is being fashioned using simple hand tools such as these shaving horses which will then be utilized to teach green woodworking

harmony, it's a chorus of peacefulness in my mind that is something that I can't attain when I'm running powered machinery. Something that strikes me every single time is how students are able to hear the birds. They're able to observe nature. As we become more estranged from the natural world, it's these experiences which I think students are really, really hungry for and why a place like Sterling College is so important right now, a place where these ideas and these techniques and tactics are actually practiced and taken seriously!

Along with the mechanics of driving and learning how to work in the woods or work in the fields or in the garden in terms of machinery, hooking up to equipment, that sort of thing – it's something that's always going on is the husbandry side of our curriculum which is learning how to select stock, learning how to go to an auction and choose an animal that is sound. The husbandry skills associated with the stable management, the veterinary care that we can perform ourselves, all of that is a package that's happening around the 'higher glamour' of harnessing and

going into the woods and extracting logs. Well, there was a lot of work that had to be done to that horse before he was ready to go into that work – so understanding nutrition, understanding animal care, diagnosing issues with your animal around, uncomfortable yoke fit or a bow bunch that's beginning to develop, being able to observe your animals and know them so well that you can tell just simply by the way they came into the barn that they're not quite right today. This is the kind of work that students really latch on to, they enjoy going to the woods and felling trees and extracting them, but I find they also really enjoy the care of the animals. We speak about the word 'dignity' in at our stable. We talk about dignity for all who come within and it's this notion that our animals are our working partners, that they are important to us and if something is important to you, you want to spend time with it and if you spend time with something – well, you begin to show affection to it and I think understanding that these animals are working and they are working partners is one thing but, on the other hand, being able to have some compassion towards your animal, being able to understand that your animal has good days and bad days – these are all very important skills!

I think something I've seen over the last now 23 years has been this: The fact that the experiences that students have while they're in this program are truly transformative. They may never experience draft animals again in their lives and most won't, but during their time here, their identity was completely intertwined with the barn, they were completely aware that they had a badge that they wore that said: "I am a draft animal person, I smell like cattle. I have horse hair all over my body in the spring." It's important for young people to develop an identity and to experience something that's bigger than themselves and I have just stood back and watched people mature in front of my eyes as a function of working with these draft animals here at the college.

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**Title** (Rick Thomas, Teaching Teamster and faculty in Sustainable Agriculture for the Wendell Berry Farming Program of Sterling College introduces English Shepherd Tad to working steer Star) – R. Thomas.

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