

WILLIAM H. MINER AGRICULTURAL RESEARCH INSTITUTE STRATEGIC PLAN 2025

Carrying on William Miner's vision of science in the service of agriculture.

William Miner's Vision Fulfilled

By 1923, William Miner envisioned that Heart's Delight Farm would become an agricultural education and research college:

“(The) college will offer...subjects such as dairying, animal husbandry, plant pathology, soils, and agricultural chemistry...(with) opportunities for experimental work in order that the school...*may advance the science of agriculture.*”

A century later, Miner Institute's 2025 Strategic Plan lays out our priorities in research, education, demonstration, and community engagement to fulfill William Miner's vision of *science in the service of agriculture.*

Critical Elements of the 2025 Strategic Plan

Previous strategic plans have consolidated and strengthened the Institute's fundamental focus on forage production, efficient animal use of these crops, and the environmental consequences of dairy production. Now *we expand our focus to include milk analysis* as a precision tool to better manage dairy cattle health and productivity. We will enlarge our dairy research and education efforts *to include youngstock* to complement our continuing strength in transition, dry, and lactating cow management. By mid-century, sustainable dairy farms will be characterized by highly evolved forage and animal management systems that integrate on-farm data collection and technology to improve animal well-being and productivity.

The Institute's focus on forages, animal management, environmental stewardship, and milk analysis will be our unique contribution to agricultural sustainability in the North Country and nationally.

Past strategic plans have focused primarily on education and research. *This 2025 Strategic Plan emphasizes our demonstration mission equally.* We intend to make strategic investments in our farming and equine operations, and implement research-based farming practices, to ensure that our day-to-day animal and cropping operations demonstrate optimal management.

In addition, the Institute's equine program must evolve in order to *best serve the needs of a burgeoning horse enthusiast population.* A key component of this plan will be the design of an indoor arena with multi-purpose capabilities to allow *year-round* programming.

This 2025 Strategic Plan charts our course as we lead regional and national education, research, and demonstration efforts in dairy, equine, forage, and nutrient management. Our primary target will be dairy farmers, horse owners, and allied industry; and we must continue to engage community partners, policy makers, and enhance the general public's knowledge and appreciation of agriculture.

Going forward, we aim to be the *indispensable source* of information and leadership on issues important to agriculture in New York's North Country and beyond.

- Our *research* will evaluate advanced forage genetics and management strategies that optimize animal response and agronomic systems that enhance environmental stewardship.
- Our *education* programs will showcase this cutting-edge knowledge and stress the importance of agricultural and environmental issues in society.
- Our farm will *demonstrate* best management practices for crop, animal, and nutrient management.

Strategic Goals of Miner Institute Through 2025

Research Programs

Goals: *We will be recognized nationally and internationally as having a pre-eminent applied research program focused on the forage-animal-environment system. We will lead research in dairy nutrition and management, animal welfare, milk analysis as a herd management tool, agronomic practices, and environmental implications of dairy farming in the Lake Champlain watershed of New York State.*

Priority Research Objectives:

We will continually strengthen existing programs in forage and animal nutrition, nutrient management, and cattle management. *Our milk analysis initiative and new focus on dairy youngstock will take our research program to the next level.*

1. Forages: We will continue to develop our *Center of Forage Excellence* with a focus on small and larger scale plots for forage-crop evaluation; silage research; and optimizing rumen fermentation with an emphasis on fiber/starch. Forages and fibrous feeds will continue to be the foundation of profitable dairy feeding systems and ensure the economic, environmental, and societal sustainability of dairy production.
2. Nutrition and Animal Management: We will focus primarily on carbohydrates (fiber, starch, sugars), protein and amino acids, and fatty acids. Research will encompass mature cows with a growing emphasis on dairy youngstock. Understanding the *interaction*

between dairy nutrition and the management environment will become increasingly important and we intend to be global leaders in this area.

3. Milk Analysis and Herd Management: We will lead *transformational research on mid-infrared (MIR) analysis of milk as a herd management tool* to improve cow health, productivity, and well-being. We will continue to enhance the Milk Analysis Lab as we develop herd management models alone and in collaboration with other research groups.
4. Environment and Nutrient Management: We will continue to enhance our field research resources including edge-of-field monitoring sites with their focus on surface/sub-surface nutrient runoff. With our location in the Champlain Valley watershed, *we must lead efforts* to ensure environmental sustainability of regional farms.
5. Whole Farm Database: To transform how we manage our farm and conduct research, we will work with an outside consultant to build a continually growing, integrated, and searchable electronic database comprising all of the information collected at the Institute.

Timeline of Milestones:

1. 2019-2025. Research projects are on-going, but with a sharpened focus on forages, nutrient management, dairy youngstock, and milk analysis.
2. 2019-2020. Fill nutrient management and forage agronomist positions. The forage agronomist position is new and intended to complement existing research/education expertise and complete our research leadership group: dairy nutrition and management (3 FTE), nutrient management (1 FTE), forages (1 FTE), reproduction (1 FTE), statistics and systems engineering (1 FTE), and environmental chemistry (1 FTE).
3. 2019-2020. Expansion of Charles J. Sniffen Dairy Complex and associated manure pit and manure handling system.
4. 2021-2023. Construction and renovation of dairy youngstock facilities anticipated to improve efficiency of animal management and allow research to occur; exact timeframe dependent on budget.
5. 2020-2025. Expansion and enhancement of agronomy plots through aggressive marketing to forage genetic and seed companies (contingent on hiring forage agronomist).
6. 2019-2025: Build whole-farm database; will likely continue beyond 2025.
7. 2020-2025. Former power plant building will serve as flexible space, if needed, to accommodate any expansions in laboratory and research technician office needs.

Resources Needed:

1. Continued high level of grant funding will be needed to support these research initiatives (Target ~\$500,000 to \$1,000,000 annually).
2. Long Term Enhancement Fund will be used to partially support high priority needs and initiatives (examples would be whole-farm database and milk analysis initiative).
3. Salary for two new positions: forage agronomist and dairy youngstock scientist.

4. Continued support for 4 to 5 graduate student assistantships, post-doctoral position, and internships.
5. Funding for expansion of Charles J. Sniffen Dairy Complex and youngstock facilities (discussed in more detail in Demonstration and Financial Plans).

Education Programs

Goals: Our educational programs will continue to be regionally and national recognized for their residential, hands-on, and research-informed focus. We will prepare graduates to assume leadership roles in the dairy and equine communities. Our educational strength will remain advanced dairy management, agriculture and the environment, plus internships in dairy farm management, equine management, and agricultural research.

Priority Education Objectives:

Over half of the dairy cattle in Vermont and New York's North Country are directly impacted by graduates of our educational programs, and our graduates have a wide range of leadership roles nationally and internationally. *We prioritize student quality and leadership potential over quantity of students enrolled.*

1. Advanced Dairy Management (ADM): We will continue with current focus on cutting-edge dairy management information and critical thinking skills. *We intend to take full advantage of our high-performing dairy herd, active research environment, and low student-to-faculty ratio.* We must continue aggressively marketing the program to colleges active in the National Dairy Challenge since these are precisely the type and quality of student we are seeking. Target enrollment of 8 to 10 students per semester.
2. Summer Experience Internships: Student applications remain strong for our summer experience programs. We will continue to offer intensive, hands-on internships in farm management (SEFM, 4-5 students), equine management (SEEM, 4-5 students), and agricultural research (SEAR, 3-4 students).
3. Agriculture and the Environment: We will prioritize continued, aggressive marketing of the Agriculture and Environment course as part of the Applied Environmental Science Program (AESP) with Plattsburgh State University. Focus will remain on the Environmental Science major, but we will expand our efforts to include other majors such as Nutrition and Education, and other regional 2- and 4-year colleges. Target enrollment of 10 to 15 students per semester.
4. Year-Long Internships: We will continue to train top quality, recent college graduates for industry leadership roles with our year-long internships in dairy, equine, and research.
5. Other Major Programs: Farm Days for Fifth Graders is highly successful and constitutes our major educational effort with younger students. High school chemistry labs remain

popular with regional high schools and we will continue with marketing efforts aimed at increasing the number of schools involved. Youth Equi-Day will remain our primary educational program targeting youth with equine interest.

Timeline of Milestones:

1. 2019. Renovate and upgrade Middleton Miller Student Housing Complex to enhance student residential experience.
2. 2019-2025. Continued aggressive marketing for all educational programs with emphasis on Advanced Dairy Management and Agriculture and the Environment programs.
3. 2019-2025. Continue to strengthen linkages with colleges and universities in addition to our core source of students from University of Vermont, Vermont Technical College, and Plattsburgh State University.
4. 2019-2025. Continue awarding the Agriculture and Environment, FitzPatrick, and Flanagan Scholarships to attract qualified students.

Resources Needed:

1. Educational programs will continue to be supported heavily by Miner Foundation funding because they are fundamental to our mission and essential to our educational, non-profit status with the IRS.
2. Costs will be offset partially by tuition and other fees.
3. Meeting enrollment and residential targets will boost income and help offset cost of marketing and scholarships.
4. Modest investments will be needed to ensure that A-V equipment remains compatible with other locations for receiving and sending educational information.

Demonstration Programs

Goals: We must ensure that we are demonstrating best management practices on our dairy farm and within our equine program. We will make targeted investments in, and modifications to, facilities, equipment, and practices to be truly excellent. We will use appropriate technology to deliver cutting-edge, research-based information to regional, national, and international audiences and aim to be viewed by farmers, agribusiness, and policy makers as a primary source of agricultural information.

Priority Demonstration Objectives:

More than 4,000 people participate annually in our demonstration and outreach programs, and we must ensure that we are consistently demonstrating research-based, optimal management strategies in both our dairy farm and horse herd. Previous strategic plans have focused primarily

on our research and education mission; *this plan will focus equally on demonstration*. Our farm will seek to demonstrate best management practices in crop production and nutrient management that showcase the latest research innovations in cover crops, manure management, no-till and precision farming.

1. Dairy Farm and Cropping. We will continue to manage the dairy farm using research-based, best management practices to achieve performance metrics within the top-5% of comparable US dairy herds. Our dairy herd routinely is one of the top herds in the northeast, and a primary objective going forward will be to enhance our cropping management with strategic investments in equipment and practices. Specific objectives include greater use of winter forage crops to increase forage inventory; improving nutrient efficiency and enhance soil health; increasing use of no-till production where appropriate; adopting manure management practices designed to increase nutrient use efficiency and decrease environmental losses; and adopting when feasible precision technologies such as yield monitors and GPS systems. We will improve the functioning of silage leachate systems. Herd size through 2025 will be approximately 500 mature cows and we need to have one acre per animal unit, or about 1200 acres. *We must retain financial flexibility to purchase land if it becomes available*. A series of facility improvements for the dairy farm are envisioned to increase efficiency of herd management, maintain animal stocking density at desirable levels, allow flexibility for future technologies such as robotic milking systems, and create greater research capability.
2. Equine program. We will continue incremental improvements in existing facilities and programs. Safety and efficiency of equine barns will be upgraded. But, for the equine program to remain relevant beyond the next 5 years, we need to plan for an arena and multi-purpose facility that will position our program for future growth. *This facility will allow the equine program to meet the changing needs of horse owners*; otherwise we run the risk of this program slowly becoming obsolete and of dwindling value. The facility will accommodate several exercising horses and enable training to occur year-round. Consequently, more student internships will be offered throughout the year to complement the Summer Experience program. In the North Country, large venues for equine events are restricted to fair weather, and a larger covered facility would open up a wealth of possibilities to the Institute to serve horse owners. *Importantly, an active learning environment for horses and students will be available year-round*.
3. Outreach programs. Recently, attendance at our marquis programs have been increasing modestly, and we aim to continue this trend (i.e., Dairy Day, Crop Congress, Equi-Day). We will begin a complementary program in nutrient management given its tremendous and growing significance in the region. The Harry A. Randy Travel Scholarship will be used to support travel to the western US with our ADM class for one regional dairy farmer annually who attends Dairy Day, selected randomly from attendees. In addition, we will develop workshops and short courses, alone and in collaboration with other

organizations. We will continue to publish the *Farm Report* and *The Stable Sheet* newsletters, maintain a continually updated, relevant web site, and equip our classrooms and auditorium with technology that allows web and video conferencing and provides flexibility to adapt useful A-V innovations.

Timeline of Milestones:

To meet the needs of our research and education programs; retain flexibility to take advantage of future technologies; enhance farm efficiency; and improve animal well-being, we envision several major facility projects through 2025 in addition to conferences and Open Houses.

1. 2019-2020. Dairy barn expansion and associated manure pit and handling system.
2. 2020-2023. Design, planning, renovation and expansion of dairy youngstock facilities to improve management efficiency and allow for calf and heifer research.
3. 2019-2023. Upgrade silage and feed storage capabilities with 3 additional bunker silos.
4. 2020. Upgrade silage leachate collection and system for bunker silos.
5. 2020-2021. Initial nutrient management conference organized and delivered.
6. 2020. Open House planned to feature new dairy barn expansion and associated programs.
7. 2020-2025. Design and planning will be completed for equine multi-purpose riding arena. Anticipated construction would actually begin shortly after 2025 unless funding becomes available before that time. An Open House will be planned in conjunction with the completion of this facility.

Resources Needed:

1. Resources required for construction of major farm facilities will be detailed in Financial Plan under "Capital Project Timeline."
2. Appropriate funding will be expended annually to continually upgrade technology and equipment in classrooms and on the farm.
3. User and facility fees will be assessed to offset cost of conducting industry training programs.
4. Harry A. Randy Travel Fund will be used to support one travel scholarship annually for a regional dairy farmer who attends Dairy Day.

Community Engagement

Goals: *We will engage the general public on issues that cross-cut agriculture and society such as food safety and security, environmental stewardship, and animal well-being. Less than 2% of Americans are involved in farming, and this provides us with a unique opportunity to tap into their curiosity and interest in food production.*

Primary Engagement Objectives:

1. Greater collaboration with The Alice Miner Museum and other organizations to better inform the public about the many contributions of William and Alice Miner.
2. Focus on staff engagement. We will continually work to effectively communicate with, and engage staff in, the goals and objectives of the Institute. We anticipate that this will help retain employees, keep morale high, and strengthen company culture and our public image. We want staff to feel prepared to interact with the public whether on Institute grounds or elsewhere.
3. Continue to deliver informative, agriculture-themed programs such as the Agriculture in Society speaker series. We intend to offer programs both at the Institute as well as other locations depending on the desired audience. *We need to do a better job of soliciting feedback and suggestions from our target audiences.*
4. Community engagement through community service. Building a stronger Miner Institute team and helping to build a better community within the Institute and beyond. We will continue to host non-traditional events that attract new audiences such as Strides for James and Comedy for a Cause.
5. Continue cultivating relationships with local media that establish Miner Institute as a trusted source of information regarding the dairy and equine industries and the environmental impacts of agriculture.
6. Work to create an audio tour that could be downloaded from our web site for visitors as they tour the Heart's Delight Farm Heritage Exhibit, dairy farm, and horse barns. Complementary work on informative signs, brochures, and bilingual resources would provide visitors with information about contemporary agriculture and Miner Institute programs.

Timeline of Milestones:

1. 2019-2025. All objectives specified above will start in 2019-2020 and will continue throughout the next 5 years.

Resources Needed:

1. Funding to create signage, brochures, audio tour, and conduct community events will come from our core funding.

Financial Plan

Goals: *We will maintain a strong financial position capable of providing sufficient support to meet our short- and long-term education, research, and demonstration goals and objectives. We will also provide adequate funding to maintain and operate the Institute's facilities and infrastructure, key components to the success of our programs. Finally, we will establish a*

financial position that ensures our ability to provide this funding support through potentially difficult and certainly changeable economic times.

Primary Financial Objectives:

1. Achieve a working capital balance that represents *at least 40% of an annual operating budget* with sufficient liquidity to meet the funding requirements of our daily operations.
2. Allocate *sufficient funds* into capital reserves fund to provide for current capital expenditures or establish funding for significant future capital expenditures.
3. Allocate an additional funding to capital reserves between 2019 and 2025 to provide funds for significant projects described in this 2025 Strategic Plan.
4. Continue to grow Long Term Enhancement Fund to provide funding for strategic investments in support of our mission.

Capital Project Timeline:

2019-2020: Dairy barn expansion, projected cost of ~\$2,000,000.
2021-2023: Youngstock barn renovation and expansion, projected cost of ~\$2,000,000.
2025 and beyond: Equine multi-purpose arena, projected cost TBD.
2019-2025: Maintain funding for purchase of crop land if it becomes available until we reach our goal of owning 1,200 acres.

Monitoring Progress Toward Goals

An Annual Progress Report will be sent to the Board of Trustees and used by Institute staff to assess progress toward goals and objectives for our education, research, and demonstration missions. This table summarizes easily measured dashboard indicators that we intend to use to assess if progress toward our strategic goals is essentially on-target.

Program	Indicator	Target
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Research	Grant income	\$500,000-\$1,000,000/year
	Peer-reviewed papers	4-5/year
	Abstracts	10-15/year
Education	ADM enrollment	8-10/year
	Summer Experience internships	3-5 per program for total of 12-15/year
	Appropriate student placement	75+% entry into dairy or equine industry, allied industries, or academia. Significant placement of AESP graduates in ag-env positions
	Student satisfaction	4 or greater (1 to 5 scale)
Demonstration	No. of meeting attendees	2500+
	Popular press publications	10/year
	Dairy herd performance	Top-5% using Dairy Metrics