FARM INPUTS
Animal Feed

How much do Vermont farmers spend on animal feed? What can be done to reduce feed costs?

The way we feed the animals (e.g., milk cows, cattle, poultry, lamb, and hogs) that feed omnivores today is complex, involving a global system of production, processing, and distribution.[34] This system includes many types of feed ingredients and livestock production systems. For example, animal feed usually consists of three components: forages (e.g., hay, corn silage, haylage), concentrates (e.g., corn, soybean meal, minerals), and by-products (e.g., wheat middlings, distillers grains) that are mixed to achieve certain nutrient balances depending on the type of animal.[35] But animal feed ingredients may also consist of rendered animal protein (with restrictions based on possible prion contamination), marine by-products, and antibiotics.[36] Livestock production systems around the globe range from ruminant grazing systems where the animals spend all or the majority of their lives outside eating grasses, to mixed systems with a combination of grazing and stored forages, to "*animal feeding operations*" where the animals are confined in lots, buildings (pens), or combinations of these, and feed is brought to them.[37]

Animal feed is the largest production expense for U.S. and Vermont farmers. Total animal feed expenses in Vermont were over $151 million in 2007, equal to over 26% of total farm production expenses (Figure 3.2.6, page 8). Dairy farms accounted for 89% of feed purchases in Vermont, equal to 32% of total production expenses for dairy farmers in 2007.[38]

The majority of dairy cows, especially those in larger operations, and some other livestock in Vermont are raised in housing and many of these animals are fed stored grains and forages year round.[39] Poultry and swine are raised in a variety of combinations of confinement and outdoor conditions. Crops grown to feed livestock (primarily cattle)—corn for grain, corn for silage, and all forages—constituted nearly 98% of all harvested cropland acreage in Vermont in 2007. Dairy producers farmed 66% of the corn for grain acreage, 91% of corn for silage acreage, and 62% of forage-land, or 66.4% of all harvested cropland in 2007 (Table 3.2.13).[40] It is assumed that most of this corn grain, corn silage, hay, and forage is consumed by livestock in Vermont and the region. We also assume that the bulk of feed consumed by Vermont animals are imported and sold through local dealers (e.g., *Blue Seal Feeds*, *Bourdeau Brothers, Inc*, *Green Mountain Feeds*, *Morrison's Custom Feeds*, and *Poulin Grain*).

A growing number of Vermont farmers also raise their livestock outside on grasses for much of the year and then winter their animals on stored forages.[41] Vermont's winters are a limiting factor for year-round grazing, but the length of Vermont's winters are changing: in the past forty years, climate change has extended the growing season for frost-sensitive plants by two weeks and three to four weeks for frost-hardy plants.[42] The *U.S. Global Change Research Program* predicts reduced snowpack and a longer growing season in New England in the years ahead. This is a factor that deserves serious consideration in strategies for livestock production into the future.

Table 3.2.13: Vermont Cropland Harvested for Animal Feed, 2007

Crops Harvested	Acres	Percentage of Harvested Cropland
Corn for Grain	5,368	52.3%
Corn for Grain on Dairy Farms	3,554	29.2%
Corn for Silage	87,403	6.5%
Corn for Silage on Dairy Farms	79,226	3.8%
Forage-land	330,984	3.2%
Forage-land on Dairy Farms	204,992	2.6%
Total Feed Crops Harvested	**423,755**	**97.8%**
Sub-total Dairy Farms	287,772	66.4%

Source: 2007 Census of Agriculture, Table 62, *www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_1_State_Level/Vermont/vtv1.pdf*.

Over the past several years, commodity prices, including those for animal feed, have increased dramatically.[43] Although many of the trends impacting the cost of feed are out of the hands of Vermont farmers, there are opportunities for reducing feed costs, including the production of high quality forage in Vermont, production of cereal grains locally, and improved management of stored forages to avoid losses from spoilage.

CURRENT CONDITIONS

From 2006 to 2008 commodity food prices (including animal feed prices) rose by more than 60%.[44] Since the Census of Agriculture takes place every five years (i.e., 1997, 2002, 2007) it does not capture this three-year window. However, the total amount spent by Vermont farmers on animal feed increased 15% from 2002 to 2007 (from $132 million to $152 million, adjusted for inflation to 2010 dollars) even though the number of dairy cows in Vermont decreased by 9% during that period. One indicator of animal feed costs—the benchmark Central Illinois price for a bushel of corn—increased 124% from 2006 to 2008 (adjusted for inflation to 2010 dollars).[45]

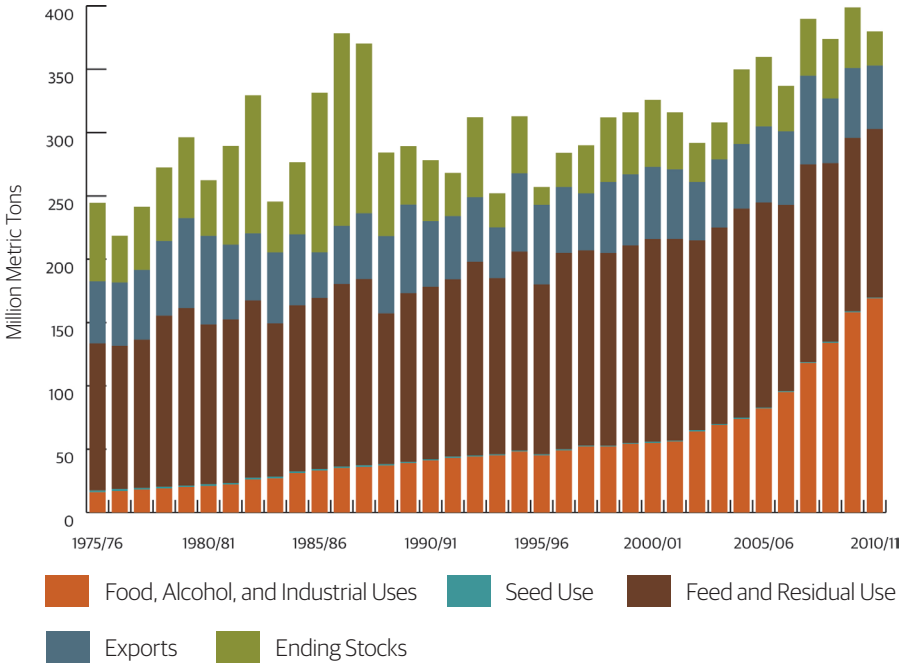
The Economic Research Service of the USDA reports that the index of average commodity prices closely parallels the prices of four major crops (wheat, corn, rice, and soybeans).[46] Recent increases in commodity prices and retail prices reflect a variety of short-term and long-term factors impacting these four major crops, including:

- **Rising fossil fuel prices:** from 1968 to March 2011 the price of a barrel of imported oil increased 469% (adjusted for inflation to 2010 dollars). From 1998—the year of the lowest price for a barrel of oil in the past 43 years—to 2011 the price of a barrel of imported oil has increased about 541%.[47] About 87% of world energy consumption comes from oil, coal, and natural gas.[48] Food system activities consume a lot of energy, "from the manufacture and application of agricultural inputs, such as fertilizers and irrigation, through crop and livestock production, processing, and packaging; distribution services, such as shipping and cold storage; the running of refrigeration, preparation, and disposal equipment in food retailing and food service establishments; and in home kitchens,"[49] so rising fossil fuel prices have broad food system impacts. For example, corn and soybeans are the two largest crops planted and harvested in the United States, and corn and soybeans are commonly used in the feed ration for dairy cows and other livestock. Corn appears to receive the most fertilizer of any crop in the United States, with over 95% of the corn planted in the country receiving nitrogen, over 80% receiving phosphate, and over 60% receiving potash in 2008.[50] Natural gas, a nonrenewable fossil fuel, is used as a feedstock to make ammonia that, in turn, is used as a fertilizer or as a feedstock to make synthetic nitrogen fertilizers. As natural gas prices increase, the price of nitrogen fertilizer increases, and consequently the price of animal feed increases.[51]
- **Economic growth and population growth in developing countries (e.g., China) has increased demand for energy:** The Gross Domestic Product growth rates in the developing world, including China, have been much higher than in the developed world for the past 30 years.[52] From 1980 to 2008 China's energy consumption increased 80%, while energy consumption in India increased 209%. In comparison, Europe's energy consumption increased 16% during that time period, while consumption in the United States increased by 22%. China is the now the number two energy consumer in the world behind the United States (the United States and China alone consume more energy than most continents).[53]

- **Economic growth in developing countries has increased demand for meat:** Historically, as per capita incomes have increased in developing countries, diets have diversified to include more meat, dairy products, and vegetable oils, which has consequently increased demand for grain and protein feeds.[54]
- **Agricultural production of four major commodities—corn, wheat, rice, and soybeans—has slowed:** From 1970 to 1990, global production of aggregate grains and oilseeds increased by an average of 2.2% per year. Since 1990 the growth rate has decreased to about 1.3% per year, and USDA estimates that it will decline even more in the next 10 years. Global aggregate yield growth for grains and oilseeds averaged 2.0% per year from 1970 to 1990, but declined to 1.1% per year from 1990 to 2007, and the USDA estimates yield growth will continue to decline for the next 10 years.[55]
- **Adverse weather has impacted production yields:** Multiyear droughts in major grain producing countries such as Ukraine, Russia, and Australia have impacted production yields.[56]
- **Policy responses have been enacted to reduce exports:** Some countries eliminated export subsidies and taxes, while other banned the export of certain commodities (e.g., Ukraine banned wheat exports). These policies had the effect of raising global demand for food commodities while prices were already rising.[57]
- **Increased corn-based ethanol production:** Since 2003, federal support policies and the replacement of methyl tertiary butyl ether with ethanol have increased the amount of corn used for biofuel production.[58]

Figure 3.2.13 depicts several of these trends for U.S. feed grain production.[59] For example, the average annual growth rate in the *total supply* (including beginning stocks, domestic production, and imports) of feed grain production was 3.4% from 1975-76 to 1989-90. Between 1990-1991 and 2007-2008 the average annual growth rate was 2.3%. The average annual growth rate of U.S. feed grain *production* was 5.3% from 1975-1976 to 1989-1990. Between 1990-1991 and 2007-2008 it was 4.4%. Between 1975-1976 and 1989-1990 the U.S. maintained an average of 72 million metric tons of beginning stocks per year, while from 1990-1991 to 2007-2008 that number shrank to an annual average of 42 million metric tons. Imports made up a small percentage of the total supply of U.S. feed grain, while exports stayed relatively constant from 1975 to August 2011. From 1975-1976 to 2010-2011, food, alcohol, and industrial uses of feed grains increased 929% and this is largely attributable to increased ethanol production. The total amount of grain used for feed has increased from 1975-1976 to 2010-2011, but it makes up a smaller percentage of the pie: in 1975-1976 grain used as feed equaled 63% of total feed grain uses. In 2010-2011 it was down to about 38% of total feed grain uses.

Figure 3.2.13: U.S. Feed Grain Production (Corn, Sorghum, Barley, and Oats)



Source: Economic Research Service, Feed Grains Database, www.ers.usda.gov/Data/FeedGrains/.

Taken together, slower growth in production, increased global demand, increased energy consumption and fossil fuel prices, increased biofuel production, adverse weather events, and other factors have recently tightened the world's supply of food commodities (including animal feed ingredients), leading to higher prices and lower stocks of grains. Animal feed purchases in Vermont take place in the context of these short- and long-term

domestic and international trends that are increasing the prices of food commodities. Dairy farms make the majority of animal feed purchases in Vermont and, when high feed costs intersect with low milk prices, the consequences can be disastrous.

Low Milk Prices and High Feed Prices

In the first decade of the 21st century, the annual average all-milk prices received by Vermont dairy farmers have been well below historical averages. In 2000, 2002-2003, 2005-2006, and 2008-2010, the price per hundredweight of milk was below $20 (adjusted for inflation to 2010 dollars using the fresh processed milk producer price index). In 2009, milk prices dropped to the lowest price on record: $15.60 per hundredweight.[60] These historically low milk prices intersected with historically high feed prices, making it difficult for many Vermont dairy farmers to stay in business—from 2007 to August 2011 the number of dairy farms in Vermont decreased by 150.[61]

Vermont has small and midsize locally owned grain companies, as well as several companies that operate on the regional, national, and international scales. Typically, farmers have 30 days to pay for the grain they receive before they incur interest payments, most often in the range of 1.5% per month. Farmers can choose to pay grain bills early to receive discounts of up to 2% of the bill total. Prices for set amounts of grain to be delivered over an extended period of several months can be locked in by farmers to remove fluctuations in price.

Historically, the receivables carried by grain companies as they await payment from farmers have taken predictable swings. In the spring, when farmers are incurring the expenses of seed, fertilizer, fuel, and labor to plant crops and get off the first cutting of grass, feed payments often fall behind. Likewise, when property taxes are due in the fall, some farms have difficulty paying the entire grain bill. Local grain suppliers are able to address these shortfalls through the collection of interest payments and the maintenance of lines of credit from local banks and commercial lending institutions, ensuring their ability to pay their suppliers of commodity grain ingredients from the Midwest and elsewhere.

When farmers experience difficulty paying their grain bills over the course of several months, account balances can escalate as a result of interest charges and, in some cases, late payment fees. In February 2009, in the wake of the lowest milk prices in history, at least one grain company saw the average age of its account balances (i.e., money owed to it by farmers) explode from approximately 30 days to over 65 days in a one-month period. In other words, the grain supplier received almost no income from grain sales made the previous month. By the fall of 2010, following a year and half of low milk prices, some grain suppliers were facing average ages of receivables nearing 90 days.

Farrell Farm hay bales, Norwich

PHOTO CREDIT: James Simard

Jim Bushey, of *Bourdeau Brothers, Inc.*, commented on the financial relationship between farms and his feed vending business: "At the end of 2008, we had a historic ledger balance of zero for receivables, what farmers owed to us. At the end of 2009, our receivables were the highest they'd ever been in the history of the company. It's amazing what one year can do in the dairy industry."

The presence of aged accounts is detrimental to grain companies. Financial regulatory procedures followed by banks and other lending institutions require accounts over 90 days to be considered "bad debt" and not collectable. Most farms do pay down their aged accounts when milk prices recover, but in the interim the credit ratings of the supplier companies are eroded, decreasing access to the credit needed to purchase commodity grain.

If a farm declares bankruptcy or sells its assets, the grain supplier is considered an unsecured lender and can face significant losses. With the increase in farm size a single account can affect the overall financial health of a grain company. Concern about unsecured debt has led many grain companies to require "cash only" payments from some of their clients. Understandably, this increases stress for both the producer and the feed dealer.

Bushey says his company has expanded to include a wider variety of feeds to serve goats, sheep, poultry, dogs, and horses, but dairy farmers continue to be their core customers. Currently, *Bourdeau Brothers* has about 75,000 acres under contract

for nutrient management planning out of its Middlebury location. Bushey reports that many farmers who have chosen to grow their own feed crops have seen an improvement in the health and productivity of their herds, and he also sees livestock production as a diversification opportunity for dairy farmers.

ANALYSIS

Feed for dairy cows and other livestock is the single largest production expense for Vermont farmers and crops grown for animal feed represent the largest category of crop production in the state. Animal feed purchases in Vermont take place in the context of short- and long-term domestic and international trends that are increasing the prices of food commodities. Vermont farmers have very little control over these trends. For example, when high feed prices intersect with low milk prices, as they have in recent years, the impacts ripple through Vermont's food system, affecting dairy farmers and the support organizations (e.g., feed dealers) that depend on the success of Vermont's dairy industry. **However, Vermont farmers *can* manage the production and storage of *high quality forage* and *grains* in order to minimize feed expenses.**

Increased Local and Regional Grain Production: For example, although the 20-year trend in the total inventory of Vermont livestock and cropland devoted to growing animal feed is down (Table 3.2.14), **many of the livestock producers, distributors, and retail outlets interviewed during the Farm to Plate process identified a strong and growing local and regional demand for Vermont produced meat.** Local and regional markets for Vermont produced meat may provide an important option for diversification on dairy farms because dairy farmland, equipment, and buildings are more easily adapted to other forms of animal-based production. In particular, consumer interest in source-verified, organic and/or grass-fed meat produced using specific standards can create a significant advantage for Vermont livestock farms.[62] *NOFA Vermont* reports that as of December 31, 2010 Vermont had 77 organic livestock producers.[63]

Additionally, demand for organic milk continues to grow: From 1997 to 2010, the number of certified organic dairy farms in Vermont increased 480%, from 35 farms to 203 farms.[64] The USDA Agricultural Marketing Service indicates that organic milk production grew over 70% from 2006 to 2010, while total fluid milk production

Table 3.2.14: Vermont Livestock Inventory, Feed Production, and Feed Purchases, 1987-2007

	1987	1992	1997	2002	2007
Vermont Livestock Inventory					
Hogs & Pigs	5,133	3,738	3,477	2,019	2,701
Other hogs and pigs	4,084	2,768	2,718	1,590	2,186
Sheep	20,456	17,145	16,589	14,743	13,925
Ewes 1 yr old or older	12,824	10,880	11,099	9,189	9,162
Goats	971	1,548	3,892	4,133	6,593
Raised for meat	--	--	1,281	940	1,813
Poultry	442,902	187,390	279,470	280,671	301,274
Broilers	4,449	5,990	16,233	20,753	42,485
Turkeys	2,495	1,211	4,570	1,909	5,748
Cattle and Calves	320,189	310,518	304,639	283,619	264,823
Beef cows	9,805	11,812	12,871	11,276	10,002
Milk cows	178,967	168,473	162,868	150,626	139,719
Total Livestock	**788,680**	**520,339**	**608,067**	**585,185**	**589,316**
Vermont Feed Production - Selected Crops (acres)					
Corn for Grain	11,191	7,567	8,233	5,130	5,368
Corn for Silage	70,258	86,024	95,713	91,312	87,403
Hay or Forage	432,881	408,552	385,562	350,261	330,984
Total Feed Production	**514,330**	**502,143**	**489,508**	**446,703**	**423,755**
Total Feed Expenses	**$171,447,000**	**$168,617,000**	**$167,032,000**	**$131,746,000**	**$151,577,000**

Source: USDA Census of Agriculture, multiple years, *www.agcensus.usda.gov*. Notes: 1987 and 1992 poultry inventory does not include ducks, geese, and other poultry. The number of goats raised for meat were not disclosed in 1987 and 1992. The inventory of pullets was suppressed in 1992. 1997 poultry inventory does not include pullets or "other" poultry types. 2002 poultry inventory suppresses quail data. 2007 poultry inventory suppresses quail and pheasant data.

decreased 1% during the same time period. From 2006 to 2010 organic milk production increased from 1.9% of total fluid milk products to 3.3%. Except for a dip in 2009, organic milk sales grew by over 10% per year from 2006 to 2010.[65] According to the *Northeast Organic Dairy Producers Alliance* (NODPA), the price gap between organic milk and conventional milk has been over $2 since October 2008, but half gallon prices of organic milk have steadily come down from 2008 to 2010. The NODPA views the closing of this gap as a good thing, because it will attract price conscious consumers to organic milk.[66]

A market research study conducted for the *Vermont Agency of Agriculture, Food, and Markets* found that there is a regional market for domestic fair trade milk (i.e., organic and/or free of artificial growth hormones), especially among two segments of the population they dub "Social Stewards" (e.g., 2 person households in rural or suburban areas that value local products) and "Idealists" (e.g., young urbanites that aren't brand loyal but tend to buy organic, hormone-free milk). About two-thirds of Social Stewards and half of the Idealists surveyed in New England and New York would buy fair trade milk every time they shop for milk and would pay more to do so.[67]

The *USDA Economic Research Service* reports that a scarcity of organic feed grains (e.g., organic corn and soybeans) has limited production of organic meat and milk. Recent trends that increased the prices of feed commodities (e.g., conventional corn and soybeans) have dissuaded farmers potentially interested in organic production from switching over.[68] However, a recent study in Minnesota compared 18-years of data from experimental trials of organic corn and soybean production to conventional production. The researchers found that lower average production costs and the availability of substantial price premiums for organically grown corn and soybeans resulted in higher net returns for the organic production method.[69] *NOFA Vermont* reports that 1,377 acres of feed grains are currently certified organic.[70] **As one way to reduce their dependency on imported animal feed and pursue local and regional premiums for organic meat, milk, or grains, Vermont dairy and livestock farmers could investigate and expand organic grain production.**

Increased Local Grazing: Encouraging *grazing* on well managed pasture could also reduce feed costs for Vermont's small and medium dairy and livestock farms while opening up new opportunities for premiums on grass-fed meat and milk.[71] Vermont was a leader in the development of *rotational grazing*, which refers to rotating animals from pasture to pasture to maximize the nutritional value of pasture forage plants for livestock, in the 1980s. The *Vermont Pasture Network* (VPN) and the *Vermont Grass Farmers' Association* (VGFA) provide technical assistance, educational events, and networking opportunities for farmers raising or interested in raising livestock on grasses for meat, milk, and other products (the *new pasture rule* requires a minimum of 120 days grazing for organic dairy cows). Jennifer Colby, outreach coordinator for the VPN, sees opportunities for dairy and livestock farmers

Maple Wind Farm

At *Maple Wind Farm* in Huntington, the beef cattle "harvest their own feed," as farmer Bruce Hennessey likes to say. They're grass-fed cattle, meaning that for six and sometimes seven months of the year they eat grass on pasture, using their own energy to walk around and fatten themselves.

Grazing cattle on a cloudy day.

PHOTO CREDIT: Maple Wind Farm

Bruce, who runs Maple Wind Farm with his wife, Beth Whiting, says putting his 100% grass-fed cows on pasture costs "a tiny fraction" of what it would if he harvested or bought his own hay during the grazing season. (He does have to make hay to feed his cattle through the depths of winter.)

To be sure, other costs are associated with grass farming that can cancel out these input savings. For instance, it takes twice as long to finish a beef steer on grass as on grain, so Bruce and Beth must keep their beeves through two winters.

And the farm does have to purchase supplemental grain for its pastured pigs and poultry, as these animals require some grain in their diet. Right now it's difficult to find Vermont-sourced grain, but Bruce wonders if Vermont dairy farms that are forced to go out of business could switch to growing corn and soy for the state's livestock and poultry farmers.

"One thing I hope the Farm to Plate process can encourage is the development of a local grain supply for livestock," Bruce says. "Maybe then we can be local and organic, and have truly local chickens and pigs that aren't fed on Midwestern grain."

to reduce their input costs through improved pasture management. Colby believes that well-managed grass farming supports healthy animal herds (e.g., veterinary bills decrease for pasture raised animals), reduces costs, improves soil quality, reduces erosion, sequesters carbon in soils,[72] improves the farmer's quality of life (e.g.,farmers can get a higher value for milk and meat from grass raised animals), and promotes tourism (e.g., Vermont's rolling green fields are a major feature of the state's landscape). *NOFA Vermont* reports that 23,562 acres of pasture, 51,778 acres of hay land, and 1,294 acres of silage were certified organic at the end of 2010.[73]

Improved Forage Management: Finally, the majority of dairy animals and livestock in Vermont are raised in housing and many of these animals are fed stored grains and forages year round. Many Vermont farms grow conventional corn and forage for animal feed, and a growing number are producing organic corn and forage, but Vermont farms also lose a significant portion of their stored feed due to unnecessary spoilage. **Management of stored forages to avoid losses (e.g., poorly managed silage in bunks, deterioration of baled hay left in fields, spoilage resulting in mycotoxins[74]) offers major opportunities for preservation of feed, reduced cost of feed production, and better quality of feed for animals, thus reducing the cost to produce milk and meat.**

Research

Conduct and consolidate research on local grain and forage production: Colby indicates the need for additional research on pasture management, including exploring soil amendments for pastures, reducing pasture compaction, ways to enhance microbial activity in pasture soils, herd management techniques, and milk quality analysis. In addition, better implementation of information that is already in hand on pasture management is needed. The *Vermont Feed Dealers and Manufacturers Association* conducted a series of stakeholder meetings for the dairy industry in 2009 which clearly identified the need for in-state research on forage crop varieties, as well as improved harvesting and storage techniques. Storage losses in bunker silos are often significant, and those are direct unrecoverable costs that can be substantially avoided.

In response to the rising financial and environmental cost of petroleum fuels, a handful of farmers in Vermont are also **growing oilseed crops** (e.g., sunflower, canola, and soybean). The oil from these crops can be extracted as food-grade oil or converted into biodiesel, a low-emission diesel fuel replacement suitable for farm equipment, heating, and transportation. After extracting the oil, the remaining fiber is a nutrient rich meal that can be used as a livestock feed and/or a soil amendment. Of the three main oilseed crops grown in Vermont, soybean meal is considered the most desirable for livestock feeding in terms of protein content and amino acid profile. Soybean meal contains several factors that reduce its digestibility to poultry and swine, however. Relative to soybean meal, canola and sunflower meal have higher amounts of rumen-degradable protein, which can limit the amount fed per day to dairy cows. Canola also cannot be fed in large amounts (maximum 3% of diet by weight) to brown egg–laying chickens. The key determinants of a livestock meal's value to feed dealers and farmers are quality and consistency. Further refinement and standardization of batch-processing techniques are needed, and additional, regular testing of the farm-pressed meal is recommended to establish quality and consistency.[75]

Technical Assistance and Business Planning

Ensure comprehensive statewide technical assistance for animal feed production and storage: Assistance for efficient production of conventional and organic annual and perennial crops, proper harvesting and storage techniques, appropriate use of soil nutrients, and ration balancing is essential to reduce the cost of feed inputs for dairy and livestock producers. *UVM Extension* provides research and outreach for growing and storing high quality *hay and haylage*, and *corn silage and grain*, as do many Extension offices across the country.[76] But reduced staffing at UVM Extension has limited this traditional source of information. Access to highly trained expertise for animal feeding and management is also available through private businesses. Most feed companies provide services such as forage crop selection, management, and testing, ration balancing, record keeping, continuing education seminars, and technical assistance for herd health and management.

Under a variety of scenarios (e.g. if the number of livestock producers with small numbers of animals increases; if the number of farmers raising poultry, hogs, sheep, and goats increases; if the number of organic producers increases) access to basic information on animal nutrition and opportunities to reduce feed costs will be in strong demand. More technical assistance providers are needed on the ground, conducting farm visits and providing educational events for existing and new farmers in order to

reduce feed costs. For example, Colby estimates that fewer than ten people from VPN, UVM, *NOFA Vermont*, and Vermont NRCS are providing technical assistance to farmers interested in the science and skill of grazing. **Strengthening linkages between private businesses and grant and publically funded efforts such as NRCS, VPN and UVM could increase the quantity and quality of resources available to farmers to reduce expenses and increase profitability.**

For example, as the demand for locally grown meat has increased, some farmers are able to realize more profit by shipping animals to slaughter in the spring and summer. Several producers interviewed for the F2P Strategic Plan stated that farmers who can ensure the delivery of a predetermined number of animals year-round that are slaughtered in a consistently similar way are able to access slaughter spots to meet their needs. Producers who deliver only a small number of animals sporadically experience the greatest difficulty accessing slaughter spots. Assisting farmers with winter animal management strategies so they can profitably finish animals year-round would increase their ability to secure slaughter spots. VPN is now working with VAAFM, meat processors, and wholesale partners as part of a Meat Advisory Panel to increase understanding of these issues and improve producer-processor relationships. Four workshops are planned for 2011-2012 that will focus on issues such as: understanding cut sheets, working with processors, producing consistent grass-based product throughout the whole year, finishing animals properly, and building a regional market.

GETTING TO 2020

Opportunities to reduce Vermont's number one farm input expense include increasing organic grain production (including oilseed crops), increasing pasture grazing, and improving management of stored feed to reduce losses. Strengthening linkages between private businesses, educational institutions, state, and federal technical assistance providers can increase the quantity and quality of resource's available to farmers to reduce expenses and increase profitability. The following objectives and strategies attempt to address opportunities for reducing feed costs while building resilience for farmers and farm support establishments vulnerable to rising feed costs.

Table 3.2.15: Objectives and Strategies for Reducing Feed Costs

OBJECTIVE	STRATEGY
Research Strategies	
Conduct and consolidate research on local grain and forage production.	Conduct, compile, and disseminate additional research on conventional and organic forage and grain management, including information on soil fertility and amendments, reducing soil compaction, ways to enhance microbial activity in soils, harvest timing, management of stored feed to avoid losses, herd management techniques, and milk quality analysis.
Establish systematic processes for testing, refining, and recording results of on-farm meal production to establish consistent quality standards.	Farm-scale oilseed crop processors seeking to sell their meal must establish a standard process that consistently creates a high-quality product. Regular testing of meal batch samples is recommended until a process is established, as well as an in situ amino acid test to establish the protein characteristics of the meal.
Technical Assistance and Business Planning Strategies	
Ensure comprehensive statewide technical assistance for animal feed production and storage.	Assess the variety and availability of animal feed management services offered statewide. Increase coordination between feed dealers, UVM Extension, NOFA Vermont, and other service providers, as well as local and regional animal feed producers.
Financing Strategies	
Explore funding options for expanding the number of forage management technical assistance providers in Vermont.	Identify federal, state, foundation, and university funding sources for expanding the number of technical assistance providers supported through public and private organizations.