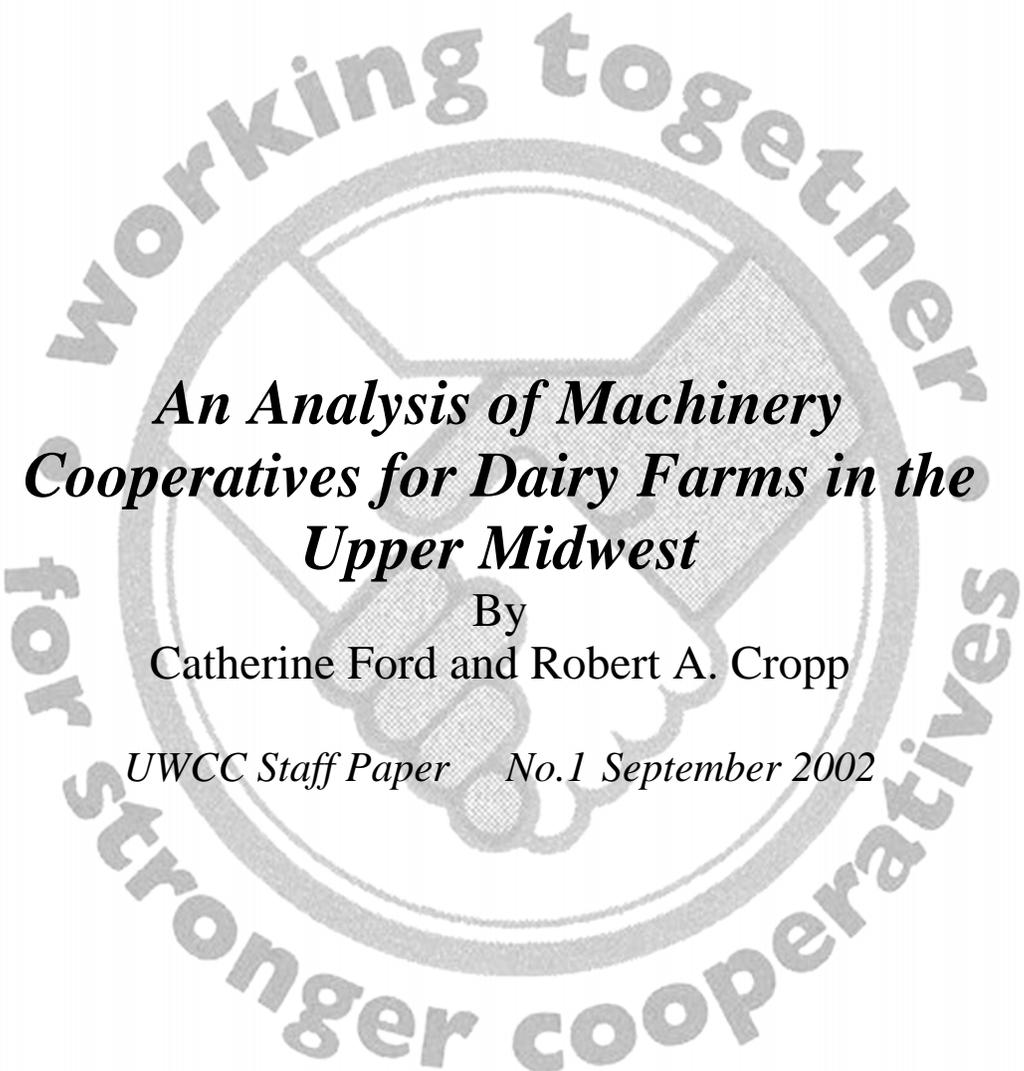


STAFF PAPER



*An Analysis of Machinery
Cooperatives for Dairy Farms in the
Upper Midwest*

By

Catherine Ford and Robert A. Cropp

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University of Wisconsin Center for Cooperatives
230 Taylor Hall, 427 Lorch St.
Madison, WI 53706
Ph: (608) 262-3981
www.wisc.edu/uwcc

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Catherine Ford and Robert A. Cropp

Catherine Ford is a graduate research assistant with the Department of Agricultural and Applied Economics at the University of Wisconsin–Madison.

Robert A. Cropp is a Professor with the Department of Agricultural and Applied Economics and the Director of the UW Center for Cooperatives at the University of Wisconsin–Madison.

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Introduction

With the significant increase in farm size that occurred later in the 20th century, there was also an increase in the size of farm machinery required to operate those farms. Many farms, particularly small farms, can not justify buying a full set of machinery that is only used on their farm because of their limited acreage and the significantly higher associated operating cost per acre. Consequently, many farmers turned to working with custom operators to plant and harvest their crops.¹

Working with custom operators has been a problem for farmers due to timeliness in planting and harvesting. When harvesting forage, for example, there is a two to three day window in which the best quality forage can be harvested. This is a challenge to custom operators trying to harvest several farms during this same window of time. Many farmers are looking for a solution to their equipment needs for planting and harvesting. The article “Shared Machinery Old Idea, Still Good One” discusses the joint purchase of machinery by farmers as a way to reduce individual cost, noting that sharing machinery in the Midwest “is an old practice that still makes good sense today” (Fykson, p11).² Organizing a machinery cooperative is one alternative to consider for sharing expensive machinery costs.

A major advantage of a machinery cooperative is that it addresses and controls the timeliness issue discussed above. “This could occur by coming to a consensus within the members to limit the number of acres that the machinery can be used on within a year. This is different from working with a custom operator since in that arrangement, the custom operator decides how many acres that he or she commits to during the year” (Drye and Cropp, p.2). Another advantage to the formation of a machinery cooperative is the reduction in capital invested by individual farmers in machinery. A group of farmers can spread the cost of machinery over several farms and acres. Further advantages include economies of scale applied to equipment purchased or leased, savings in

¹ Drye, Pat and Bob Cropp. “Machinery Cooperatives in Production Agriculture”. Unpublished paper, UW Center for Coops, Madison, WI, June, 2002, p 2.

² Fykson, Jane. “Shared Machinery Old Idea, Still Good One”. Agri-View, page D-1, July 16, 2002.

operating costs such as fuel purchased and insurance costs and addressing labor shortages during planting and harvesting.³

The aforementioned benefits of cost sharing equipment in a machinery cooperative highlight the greater capacity equipment, labor time reduction, better access to new technology, lower risk burden, and increased social opportunities. At the same time, risks associated with a machinery sharing cooperative should be considered prior to its formation. A major issue is that timeliness in machinery use is not completely dissolved with a machinery cooperative simply because more than one farmer-member will want to use a piece of equipment during the same time. A solution to this might be a policy in which a harvesting schedule prioritizes which farmers need to use equipment when.⁴ Another challenge to a machinery cooperative involves the establishment and maintenance of good working relationships among members. If members have major differences in how the cooperative ought to operate, then the benefits of working together may diminish and the cooperative may not be successful.

The objective of the paper is to present opportunities and limitations for the organization of machinery cooperatives for smaller Wisconsin dairy farmers as an alternative to individual purchase and/or lease of equipment or using the services of custom operators. A brief literature review of past experiences with machinery cooperatives, including those in Canada, is presented. Drawing upon a survey of Wisconsin custom operators and equipment dealers, a scenario is presented in which smaller dairy farmers may organize a machinery cooperative to take advantage of the associated economies of scale, technology sharing and labor pooling. Guidelines for organizing a machinery cooperative are presented. It is important to remember that irrespective of what decision farmers make (custom operation, individual ownership, or organizing a machinery cooperative), the decision should be compared to other alternatives.

³ Drye and Cropp, p 3.

⁴ As Drye and Cropp note, timeliness becomes a serious constraint during bad weather years. “Although a priority of harvesting schedule will bring structure to the usage of the equipment, determining this schedule could result in conflict between members” (Drye and Cropp, p. 3).

An Introduction to Machinery Cooperatives

As an alternative to the individual farmer purchase or lease of farm machinery and/or labor to use the machinery, a machinery cooperative may be a viable option for relatively small-scale farmers in Wisconsin. A cooperative may enable these smaller farmers to take advantage of technological changes and with lower financial commitments. The advantages of machinery cooperatives come from cost savings associated with access to newer and more efficient equipment at a lower individual cost due to economies of scale.⁵ Machinery cooperatives can benefit from price discounts on purchased or leased equipment and purchasing operating inputs such as fuel simply because of the greater volume of business (Harris and Fulton, Farm., p 3).

Irrespective of individual farm size, the machinery cooperative provides a structure that can reduce the costs of operating and financing farm machinery and equipment.⁶ The cooperative structure addresses labor issues by providing the opportunity to share experience and skills, particularly with new technologies. This indirect form of skills training has the advantage of attracting younger farmers who may not have years of machinery operating experience.⁷

Machinery Cooperatives in Canada

Machinery cooperatives provide an organizational structure from which the producer members can rent agricultural machines and equipment and other services.⁸ Based on a cooperative governance system, the members democratically control it based on the principle of “one-member, one-vote” (Harris and Fulton (Farm..) p. 1). The cooperatives are incorporated which serves to limit the members’ liability to the amount invested.⁹

⁵ Harris, Andrea & Murray Fulton. Farm Machinery Co-operatives in Saskatchewan and Québec, Canada: Centre for the Study of Co-operatives, University of Saskatchewan., 2000, p 3.

⁶ Harris, Andrea & Murray Fulton. The CUMA Farm Machinery Co-operatives, Canada: Centre for the Study of Co-operatives, University of Saskatchewan., 2000, p ix.

⁷ Farm Machinery Co-operatives in Saskatchewan and Québec, p 4.

⁸ The CUMA Farm Machinery Co-operatives, p 1.

⁹ Farm Machinery Co-operatives in Saskatchewan and Québec, p 1.

Farm machinery cooperatives in France developed after the second World War in an effort “to encourage the collective purchase and use of scarce farm equipment” (Harris and Fulton (CUMA...) p 14). In Canada, several types of machinery cooperatives have recently developed, based, in part, on the French system as well as to move away from machinery syndicate pools, which had no legal status and thus could not take action when members broke an agreement.¹⁰

While machinery cooperatives all provide equipment rental and use, there are a number of variants to this theme (piece sharing, whole set sharing, production pooling, and labor sharing) as seen from the following examples in Canada.

Types of cooperation

- *Piece-by-piece machinery sharing* can be illustrated with the CUMA system in Quebec. The CUMA owns all of the machinery and equipment and members are legally bound by contracts, “thereby eliminating the difficulty of having members break the informal syndicate agreements. Second, the liability of members of a CUMA is limited to their initial share investment; personal guarantees are not required” (Harris and Fulton (CUMA...) p 14). The structure of the CUMA allows for the sharing of individual machines among sub-sets of members through an activity branch, which corresponds to a different farm operation or machine.¹¹ These activity branches are developed following the identification of machinery and equipment needs; each activity branch member then provides a time and/or unit commitment for that piece of machinery for the duration of the contract.¹²
- *Sharing of complete farm machinery sets* occurs in cooperatives in Saskatchewan. Within these shared machinery set cooperatives, production may or may not be pooled, however both pool labor. “Sharing labour enables members to take advantage of or develop expertise in particular areas. For example, one member

¹⁰ The CUMA Farm Machinery Co-operatives, p. 13.

¹¹ ibid, pp. ix-1.

¹² ibid, p. 2.

may be in charge of machine repairs and maintenance, while another maintains the financial records for the co-op. Sharing labour can also allow some members to work either more or less, depending on their needs. For example, one member may wish to exploit off-farm employment opportunities, while another may be interested in farming full time but does not have enough land to do so” (Harris and Fulton (Farm...) p 7).

- *Pooled Production* is a system where the cooperative’s members assign their land to the cooperatives’ production decisions, which decides how, what and when to produce what crop(s) on each member’s land(s).¹³ Lakeside Farm Machinery Cooperative pools production. The members retain ownership of the land, however the seed or grain that is produced is part of the cooperatives’ overall pool.
- *Non-pooled production* is illustrated by the Kipling Agricultural Machinery Coop. Members make production decisions independently however a group strategy is formed “to complete key farm operations, such as seeding and harvesting” (Harris and Fulton (Farm...) p 10).
- *Sharing labor* occurs in the shared machinery set cooperatives in Saskatchewan as well as some of the CUMA in Quebec. Farm labor activity branches within the CUMA takes charge of “paying the labourers and undertaking associated administrative duties, including providing technical support and training” (Harris and Fulton (CUMA...) p 20). An example is the Leclercville CUMA. In this cooperative, replacement employees are hired when a member needs to leave his/her operation.¹⁴ This greater supply of skilled labor enables Leclercville member producers to leave the farm for longer periods of time.

¹³ Farm Machinery Co-operatives in Saskatchewan and Québec, p 6.

¹⁴ The CUMA Farm Machinery Co-operatives, p 16.

Cost-benefit analysis of shared machinery in Canada

This section lists the advantages and weaknesses tied to the aforementioned types of machinery cooperatives experienced in Canada.

Piece by Piece	Pooled Production	Shared Labor
<p>+ Greater degree of independence involved in production when individual machines are shared as opposed to entire sets¹⁵;</p> <p>+ Greater freedom in production decisions for members who have dissimilar production practices and/or do not want to change production practices;¹⁶</p>	<p>+ Avoids scheduling conflicts and ensures that operating costs and revenues are divided in a fair and equitable manner;¹⁷</p> <p>+ New members gradually build equity in the operation —a member can join the co-operative with a land base and can build equity by having income deducted until the land base and equity contributions are in equal proportions;¹⁸</p> <p>+ Encourages members to test new options (crops, farm techniques, and equipment) since there is a reduced risk to individual members.¹⁹</p> <p>- Loss of independence: members make their production decisions together and must unanimously decide how, what, and where to produce.²⁰</p>	<p>+ Labor sharing has alleviated the problem of getting reliable replacement help²¹</p> <p>+ “Time savings is another important benefit. Since joining the coop, for example, one member’s land was seeded in four and a half days and harvested in three. When farming independently, the same member required twenty-one days of labor to seed and fifteen days to harvest.”²²</p>

Strengths and weaknesses of Canadian machinery cooperatives

This section details strengths and weaknesses for organizing a machinery cooperative in Canada.

¹⁵ Farm Machinery Co-operatives in Saskatchewan and Québec, p 26.

¹⁶ Ibid, p. 26.

¹⁷ Ibid, p 25.

¹⁸ Ibid., p 8.

¹⁹ Ibid, p 9.

²⁰ Ibid, p 25.

²¹ Ibid., p 10.

²² Ibid., p 11.

Strengths

- + Cost savings and access to newer, more efficient equipment;
- + “Access to a greater pool of knowledge and resources...such as labour, experience, and ideas” (Harris and Fulton, (An Idea...), p 2)
- + Price discounts on inputs due to the greater volume of business; this can improve farmers’ buying power from input suppliers. (Harris and Fulton, (Farm..), p 3).
- + Shared financial risk and minimized individual investments ensure the most efficient use of invested capital and reduce operational costs, which allows for the purchase of more efficient and powerful machinery;²³
- + More rapid equipment turnover in order to obtain a higher resale value;
- + A positive social experience from working together and sharing experience and skills; “re-instill basic rural values with their neighbours, such as co-operation and helping one another”(Harris and Fulton (CUMA...) p 19);
- + Training—sharing experiences and skills especially with respect to new technologies;
- + Economies of scale in machinery purchased or leased (larger equipment size);
- + Share labor and enable a younger generation of people to get involved in farming without a large debt burden.²⁴

Weaknesses

- Conflicting time requirements. “The fear that two or more members might have to use a particular machine at the same time is one of the biggest reasons why many Saskatchewan farmers are reluctant to share farm machinery, especially seasonal equipment such as seeders and combines”,²⁵
- “Potential loss in income from not being able to use a machine at the most optimal time”,²⁶

²³ The CUMA Farm Machinery Co-operatives, p 17.

²⁴ Farm Machinery Co-operatives in Saskatchewan and Québec, p 4.

²⁵ Farm Machinery Co-operatives in Saskatchewan and Québec, p 7.

²⁶ Farm Machinery Co-operatives: An Idea Worth Sharing, p 9.

- Carelessness: “The risk of sharing equipment with a member who is inexperienced or careless, and the associated increased maintenance and repair costs, can quickly turn people off the idea of sharing farm machinery”.²⁷

Survey of Wisconsin Custom Operators

Custom operators were surveyed in Wisconsin to provide information about what kind of custom work they provide for dairy farmers and the different types of machinery they use as well as the financing means that they select for each type of equipment.

Survey Design and Results

The motivation for the survey was to discover the different types of machinery required for custom operations and the different means of financing, turnover rates and problems encountered. Twenty custom operators were contacted by mail and asked to complete a confidential survey. Of the twenty custom operators surveyed, only five responded. Nevertheless, the responses provide some insight about the equipment and operations of custom operators. This information has application to organizing a machinery cooperative. The table below shows the different acreage sizes for different types of custom work. These are the averages for individual farmers served by custom operators

Type of custom work	Farm Size	Survey “average” (in acres)
Haylage	Smallest	31
Haylage	Largest	492
Haylage	Average	233
Corn silage	Smallest	40
Corn silage	Largest	445
Corn silage	Average	216
Corn for grain	Smallest	38
Corn for grain	Largest	333
Corn for grain	Average	158

²⁷ Farm Machinery Co-operatives in Saskatchewan and Québec, p 27.

The acreage for an individual farmer averaged 233 acres for haylage work, 216 acres for corn silage and 158 acres for corn harvested for grain.

The reasons these custom operators leased or purchased the different types of machinery is summarized as follows:

	Reasons to Purchase	Reasons to Lease
In general	+ Equity accumulation;	+ Leases can work for new pieces but usually converted to purchase
Equipment	Reasons to Purchase	Reasons to Lease
Haybine	+ Don't need to replace machine as frequently;	
Hay Rake	+ Lease provided no benefits; it is preferred that you purchase the item;	
Forage chopper	+ At the time, a purchase was more efficient.	+ 3 year lease and then purchase it; it helps with cash flow since it's too expensive to start with
Grain combine		+ Too costly for my operation to have sitting seasonal; leasing makes more sense
Forage wagon	+ Based on need ownership is much cleaner than leasing this equipment; damage occurs and wear; + No fear of broken leases;	
Trucks for forage	+ Not very expensive;	

Custom operators were asked about the turnover rate (years before replacement) for each type of equipment and whether the equipment was leased or purchased. The following table summarizes their responses.

Machinery type	Survey average turnover (years)	% Lease	% Purchase
Haybine	6.3	0%	100%
Hay rake	6.3	20%	80%
Forage chopper	5.3	20%	80%
Grain combine	7.5	33%	67%
Forage wagons	5.3	25%	75%
Grain wagon	7.5	0%	100%
Forage trucks	8.3	25%	75%
Inverter	3.0	0%	100%
Windrow merger	3.0	33%	67%
Packing tractor	7.5	50%	50%

From the table above, purchasing equipments appears to be more prevalent than leasing, irrespective of equipment type. However, leasing was more prevalent with the more expensive equipment, such as a grain combine.

Specific Comments to issues with custom operations

Questions concerning training, challenges, and ways to improve machinery operations provided the following information:

- When you buy or lease a new machine, how do you obtain training on its operation and how much time is involved?
 1. Manual training on tractors; with choppers, technician rides along at startup to demonstrate sharpening, setup, maintenance.
 2. Try to stay with same type of machinery to avoid training.
 3. Learn on own time by reading book and asking questions, time depends on machine.
- How do you deal with time constraints when harvesting time sensitive crops, ie forage?
 1. Deal with pre-pay customers first.

2. Larger jobs take priority (size of job is an important component).
 3. Hire adequate help and avoid over-commitment to customers.
 4. Go with customer who wants to start first.
 5. First come, first served, or pre-booked.
- What are the major problems or challenges you face with your custom operation?
 1. Payments/Accounts receivable: hurt by late payments despite contract conditions (interest, etc).
 2. Weather..
 3. Labor costs.
 4. Dealer/Manufacturing parts support.
 5. Hire help to be on time.
 - What do you think could improve your operation?
 1. Updated and bigger equipment.
 2. More consistent acreage to determine equipment rotation and employee needs (insurance).
 3. 2 extra weeks of good weather in June and September.
 4. Larger customer base.
 5. Control corn planting dates.
 6. Getting paid on time and more work.
 - What are the major complaints of your customers?
 1. Larger farms take priority over small farms.
 2. Down time.
 3. Communication.
 4. Damage to field during challenging weather.
 5. Chop at proper moisture.

Machinery Cooperatives for Smaller Dairy Farmers

The following assumptions were made for a potential machinery cooperative organized by relatively small Wisconsin dairy farmers. It was assumed that 10 dairy farmers would organize the cooperative. Each farm would have 500 acres of cropland comprised of 250 acres of hay or haylage and 250 acres of corn of which 150 acres would be harvested for corn silage and 100 acres for grain. In total, equipment would be required for 5,000 acres; 2,500 for haylage, and 2,500 acres for corn (1,500 for corn silage and 1,000 for grain).

In order to obtain recommendations on the type and size of equipment required, we contacted a machinery dealer. The machinery dealer provided recommendations as to whether it was more feasible to purchase or lease the equipment. The results of these recommendations are provided in the following table.

Machinery Type	Size and style	Cost to buyer/ lessee		Purchase or Lease? Why?	Turnover Rate	
		Purchase Price	Leasing rate		Purchased	Leased
Haybine	18' self-propelled	\$70 K	\$15-20 K	Buy the machine because of the high lease price	3-4 years	Contract for 2-3 years, normally
Hay Rake	High capacity wheel rake	\$8500		Normally, don't lease this because of the high wear	3-4 years	
Forage Chopper	Self propelled, 12' hay head, 6 row corn head	\$225 K	\$60-70 K	Lease rates are very high, recommend that people buy new	4-5 years, depending on how heavy it's used	
Grain Combine	Class 5 machine with 6 row corn head and 18-20' platform, may be able to handle beans, other small crops	\$160 K	\$20 K	For this size of operation, 1000 acres, would recommend leasing or custom operation, but if the acreage went up to 2000, e.g., then it might be worth it to buy	3-4 years	Lease for 3 years

Machinery Type	Size and style	Cost to buyer/ lessee		Purchase or Lease? Why?	Turnover Rate	
		Purchase Price	Leasing rate		Purchased	Leased
Forage Wagon	4-5 combination boxes for front and rear unload	\$15 K per unit (\$60K - \$75K)	Not much leasing	Not much leasing since it has high depreciation rate, high level of wear	5 years or until it dies	
Grain Cart	500-600 bushel grain cart	\$11 K	\$2000-\$2500	A lot of leasing since it is only used for a few weeks each year. In order to deal with high demand, lease contracts are for 3 years, lease-to-purchase	Lasts 6-10 years without problems	Leasing agreement is for 3 years, with option to buy
Forage Truck	Tandem or tri-axle with 20' boxes	New boxes (\$35-40 K) with used truck, don't buy new trucks often, with new truck, \$75K		Often, people are hired who own trucks, to do the work	Lasts about 10 years	
Windrow Merger	Double windrow merger	Upper \$30K, \$38-39K	\$10 K	Very high wear, so it's preferable to purchase and the lease is very high rate, close to 30%	3-4 years	3-4 years
Packing Tractor	125-150 horsepower mechanical, front-wheel drive with loader or tractor style or blade; Recommends only front wheel, rather than 4 wheel drive due to the small size	\$70-85 K	\$12-15K	Consider leasing, since it's only used in seasonal application.	8-10 years	3-4 years

If all the equipment were purchased, between \$740,000 and \$760,000 of capital would be required. Depending on the lender's equity requirement, between \$380,000 to as much as \$600,000 would be required as equity capital for equipment purchased. On a per farm basis (10 farms), this is very feasible, at \$38,000 to \$60,000 per farm as compared to the alternative of each farmer purchasing their own equipment. The leasing alternative

releases the capital requirement for purchase but farmer members in the cooperative would incur annual lease payments. But again, these lease payments would be lower per individual farmer member than if they leased the equipment independently. For equipment that is purchased, it is recommended that new equipment rather than used by purchased. Individual farmers often purchase used equipment as a means of reducing equipment costs. But, for an organized machinery cooperative, new equipment enhances the reliability of the equipment, that is, less chances of down time for repairs and therefore, a greater probability of staying on the harvesting schedule.

Why organize a machinery cooperative?

Smaller farms face greater constraints than large farms due to operating equipment inefficiency and lack of access to modern technology because of limited total acreage involved. Machinery cooperatives provide a potential alternative to smaller dairy farmers for access to modern and relatively expensive harvesting equipment. Machinery cooperatives may also address the challenges of limited available farm labor, particularly during planting and harvesting, the timely harvesting of crops and also be a good social avenue in which to share both farm and non-farm business related information.

Guidelines to organizing a machinery cooperative²⁸

A machinery cooperative would be made up of a number of farmers that would join together and collectively own or lease a set of machinery to be used for planting and harvesting.²⁹ Numerous issues need to be addressed when a group of dairy farmers find it agreeable to organize a machinery cooperative. Some of the more important issues include: articles and bylaws, organizational structure, initial equity investment, how to handle operating capital, and more specific operating policies. In considering each of these items, there are three guidelines that the prospective members should follow:

1. Discuss all factors regarding the cooperative structure and operating procedure thoroughly.

²⁸ This section is adapted from Drye and Cropp, pp. 4-5.

²⁹ “The members of the cooperative create an initial set of articles and bylaws to be voted on by members and from then forth, an elected board of directors would set policies regarding all of the considerations surrounding the purchasing, usage, maintenance and disposal of the machinery” (Drye and Cropp, p 1)

2. Prepare a detailed written membership agreement.
3. Choose cooperative members with similar attitudes and values regarding farming practices.

Organizational structure

In order to organize a cooperative, there must be at least five members (Wisconsin statute). Members elect amongst themselves a minimum of three board directors, assuming there is fewer than fifty members. Depending on the size of the cooperative, the cooperative could be managed by consensus of the members or with a general manager who is not a member. In addition, support staff such as mechanics, bookkeepers, machinery operators, etc. maybe hired.

Articles, Bylaws and Policies

Articles would provide the over-all purpose and broad organizational structure of the cooperative. Bylaws would provide more specific operating guidelines including the number of board of directors, membership qualifications, distribution of any net revenue, redemption of equity when a member ceases to be a member, how the cooperative would be dissolved and the like. Both the articles and bylaws would be approved by a 2/3rds favorable vote of those members voting. The board of directors would establish more specific operating policies. These policies may include specific information regarding the daily operations of the cooperative, such as:

1. Equipment Rates or User Fees: This is based on an analysis of operational costs, and maybe completed with consolation with a third party, maybe such as university extension.
2. Equipment Depreciation: There are various options for determining depreciation rates, and they all have different impacts on taxes and financial reporting of the cooperative.
3. Equipment Storage: Should the equipment be stored on the property of the members or should an alternative location be secured? If stored by members, how should they be reimbursed.
4. Equipment Insurance: How much and what type of insurance should be carried on the equipment?

5. Equipment Maintenance and Repairs: How should maintenance and repairs be charged to members? This may be a part of the equipment rates or user fees.
6. Equipment Retirement: When should the equipment be replaced?
7. Fuel Purchasing and Storage: How should the cooperative purchase fuel for the equipment and where should it be stored?
8. Source of Labor: Should the members supply labor or should the cooperative hire employees?
9. Schedule of Usage: Who has priority of usage?
10. Rules of Conduct Regarding Usage: What condition should the machinery be in when the user member returns it?
11. Operational Downtime: How should this be handled?

Initial Equity Investment

The establishment of the cooperative requires an upfront equity investment by members, if they wish to join the cooperative. There are numerous options for this and may include a flat fee and/or a fee based on participating acreage. The logic behind the participating acreage fee is to create ownership of the cooperative based on percentage of usage of the equipment. Members may have concerns about this requirement if they have proportional ownership without proportional voting power. But most state cooperative laws allow for only one vote per member regardless of investment or patronage of the cooperative. The initial capital investment required from each member would be based on the desired equity level, for example, 50% equity and 50% debt. Further, equipment maybe leased rather than purchased, thus reducing the amount of initial equity capital required.

Operating Capital

Operating capital for fuel, repairs, maintenance and lease payments would be generated from fees charged to individual members for use of the equipment. An appropriate fee structure for the use of each type of equipment would most likely be established by the board of directors or by the general manager with guiding polices established by the board..

Summary

There are many benefits to forming a machinery cooperative, with the two main benefits being reduction of individual farmers' machinery costs and mediating the timeliness issue related to custom operators. Smaller farmers do not have the acreage to justify the cost of a full line of modern farm equipment. The sharing of machinery costs via cooperatives addresses this cost issue. Relying on a custom operator for forage and grain harvesting is also a viable alternative. But smaller farmers are not necessarily given priority by custom operators for work to be done. Smaller operations, therefore, may be at a disadvantage to getting harvesting completed during the window of ideal harvesting of haylage or corn silage. A machinery cooperative offers these smaller farmers the opportunity to better control the scheduling of harvesting for individual members.

There are many factors to consider prior to forming a successful machinery cooperative. The guidelines outlined a few of the issues to be addressed prior to establishing a cooperative. Ultimately, communication is the key issue to consider. Communication of needs and goals between members and their elected board of directors is crucial to the success of a machinery cooperative.

In conclusion, machinery cooperatives provide a very viable option for smaller dairy farms to address the challenges of access to modern equipment, limited available farm labor, harvesting risk associated with bad weather, and in addition, provide social opportunities to share both farm and non-farm business related information.

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