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United Agricultural Cooperative: considering the sale of the agronomy division

Special issue: Teaching case studies in food and agribusiness management

CASE STUDY

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Abstract

This case study examines a common agricultural cooperative structure in the United States, namely that of a business which both sells farm supplies to its members and also markets, to others, the agricultural products of its members. The case concerns whether the United Agricultural Cooperative should sell the cooperative's agronomy supply division. This division sells fertilizer, chemicals and seed. It also provides related services. The cooperative has received an acquisition inquiry from rapidly expanding agricultural retailer, Pinnacle Agricultural Holdings, LLC. The case allows readers to examine both detailed financial information as well as the cooperative's political environment. The case ends with readers being asked to recommend a decision; namely should the cooperative sell the agronomy division or should it be kept? Professors can read the authors' teaching note to learn recommended classroom teaching strategies and also to learn the actual decision which was made by this cooperative.

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If our operations were spread from the East Coast to the West Coast, we would have the opportunity to move fertilizer or ag chemicals from areas of drought or crop distress to areas where these products are being used. Because this is not an option for us, this just adds to the risk of price deterioration and loss.

General Manager Jimmy Roppolo (2014: 12)¹

1. Introduction

In the summer of 2012, Dean Williams telephoned cooperative general manager Jimmy Roppolo, asking Roppolo if the United Agricultural Cooperative (www.unitedag.net) would sell its agronomy division? Roppolo knew that Williams was the Executive Vice President of Pinnacle Agricultural Holdings, LLC. He also knew that Sanders, an operating brand of Pinnacle Agriculture Distribution, Inc., was actively expanding near his region.

Roppolo recalls: ‘my initial reaction was we don’t sell anything of the cooperative. We’ve got to stay in.’ Having spent most all of his career in the employment of cooperatives, and much of that working in the agronomy area, Roppolo was very serious about remaining in this part of the farm supply business.

Roppolo also recognized that United Ag bought chemicals and seed from Winfield Solutions, a division of Land O’Lakes, Inc., and not from manufacturers. ‘Winfield had no long range plans here in our area. Little was invested.’ Looking back, Roppolo could recall that a previous federated cooperative, Farmland Industries, was once the major fertilizer and chemical supplier to cooperatives in the Coastal Bend of Texas. But, ‘Farmland pulled out so the risk was real [that Winfield could as well.]’ United Ag could be left without this support. ‘We are real basic in cotton ginning, real basic in grain handling, and farm supply stores, but not in fertilizer or chemicals.’ Here Roppolo uses the term basic to explain that United Ag’s fertilizer and chemical competitors have much stronger supply chain, or vertical, integration. Hence these competitors can offer better retail pricing to farmers.

2. History

United Ag was formed as the result of many mergers. In 1976 the El Campo Farmers Cooperative (founded in 1928) merged with the Hillje Farmers League (founded in 1940), and retained the name El Campo Farmers Cooperative. Later, in 1982, the El Campo Farmers Co-op merged with the Modern Farmers Cooperative (founded in 1928), changing the name to Farmers Cooperative of El Campo (FCEC). Then, in 2012, FCEC merged with the Danevang Farmers Cooperative² to create today’s United Agricultural Cooperative, Inc.

Today United Ag’s headquarters are located in El Campo, TX, USA with the cooperative serving an 80 mile radius that includes twenty counties. The city of El Campo also serves as the location for the cooperative’s large, modern farm supplies store, a small elevator, petroleum fuel pumps, CNG pumps, and a cotton warehouse. The nearby city of Hillje is the site of both a large cotton gin and a large grain elevator. A large grain elevator and cotton gin are also located in nearby Danevang. General stores are located in Danevang, Eagle Lake, Edna and El Campo. Finally, a grain elevator is also located at the Port of Victoria. This facility serves barge, rail and truck transportation.

In 1970, Jimmy Roppolo graduated from Texas A&M University with a degree in agricultural economics. His first job was with Farmland Industries in a management trainee role at the local Producer’s Cooperative Association in Bryan, TX, USA. Within a year, Farmland put him in contact with the Callahan County Cooperative in Baird, TX, USA. He was hired by their Board of Directors to manage a feed mill, dry

¹ Personal quotations taken from publications are followed by the appropriate page number and citation per the References section. However, the majority of the personal quotations contained in this case come from in-person interviews. These interviews have been conducted by the authors in compliance with the Institutional Review Board requirements of Texas A&M University, project number 2011-0626D.

² Founded in 1928, Danevang Farmers Cooperative was the first cooperative in the State of Texas.

fertilizer plant, and farm store. In this position Roppolo learned that, although he was not a farmer, he now had enough information so to help farmers formulate better strategies for both their grain marketing and their use of fertilizer, seed, and chemicals.

In 1976 Roppolo briefly took a position with a proprietary firm, but soon returned to Farmland Industries in a sales role calling upon cooperatives located along the gulf coast of Texas. He could not know then that his largest customers were to be the predecessors of United Ag. Soon, he took a fulltime position as an assistant manager for the Danevang Farmers Cooperative (1978-1982) and, beginning in 1985, he went to work for Famers Cooperative of El Campo. In all, his lifetime career included only twenty-four months during which he did not work for a cooperative. His cooperative experience included fertilizer, chemicals, feed and also the crop handling areas of both grain merchandizing and cotton ginning.

3. Operations

The agronomy division sells planting seeds, chemicals and fertilizer. The other major activities of United Ag include cotton ginning and its related activities; grain storage and merchandising; hardware division sales; and fuel sales. The farm stores (part of hardware) sell a very wide variety of products used by farmers, ranchers, rural residents and city residents.

In 2013, United Ag ginned 150,776 bales of cotton. Table 1 shows that, in 2013, cotton contributed \$20,973,484 in sales with \$8,854,452 in total gross margins. The major sales subcategories in cotton included cottonseed sales of \$12,365,011; ginning fees of \$7,389,880, and cotton warehousing fees of \$1,020,195. Note that the sales value of cotton lint does not pass through the United Ag. These sales dollars transact directly between a cooperative member and the buyer of the lint.

Table 1. Analysis of sales and cost of sales in US\$(data provided by United Agriculture Inc., year ending April 30, 2013).

	Sales	Cost of sales	Gross margin
Ginning	7,389,880	804,161	6,585,719
Cottonseed	12,365,011	11,286,224	1,078,787
Other	198,398	28,647	169,751
Warehousing and delivery	1,020,195	0	1,020,195
Total cotton	20,973,484	12,119,032	8,854,452
Milo	19,610,067	18,733,078	876,989
Wheat	532,238	504,810	27,428
Corn	17,029,891	16,302,513	727,378
Soybeans	2,079,623	2,057,968	21,655
Total grain	39,251,819	37,598,469	1,653,450
Planting seed	4,052,152	3,654,111	398,041
Chemicals	5,929,434	4,772,434	1,157,000
Fertilizer	13,303,615	12,114,478	1,189,137
Custom application	101,869	0	101,869
Total agronomy	23,387,070	20,541,023	2,846,047
Feed	6,588,466	5,529,699	1,058,767
Hardware	8,091,474	6,072,082	2,019,392
Shop	570,752	323,292	247,460
Other	1,549,056	1,414,389	134,667
Total hardware	16,799,748	13,339,462	3,460,286
Fuel	12,257,270	11,588,292	668,978
Total	112,669,391	95,186,178	17,483,213

In cotton ginning, United Ag competes against the Moses Gin in Wharton, the Hungerford Growers Gin in Hungerford, the Farmers Gin in Palacios, the Vanderbilt Farmers Co-op in Vanderbilt, the EdCot Co-op Gin in Odem, and the Moreman Community Gin Association in Port Lavaca, TX.

United Ag's hardware division is anchored by the new El Campo general store, a 37,000 square foot facility featuring an A-to-Z assortment of item. These items include animal health, apparel, automotive, electrical, family poultry flock supply, farm equipment machinery parts, fasteners, feeds, guns, hand tools, hardware, heating and cooling, housewares and gifts, lawn and garden, paint, pet supplies, plumbing, power tools, and sporting goods.

The store has a Facebook page featuring a variety of promotion. The store website proclaims:

Who we are – what we do.

United Ag's General Store is a one-stop shop for producers in the farm and ranch industries. We are a full hardware store, but also carry ag parts, fencing, animal health, feed and more. We even offer home décor and gifts.

We focus on being a full-service company for our customers, offering special ordering, cattle marketing, feed delivery and more. We are proud to serve more than 20 counties in Texas.

Table 1 shows that in 2013 hardware contributed \$16,799,748 in sales and \$3,460,286 in total gross margins. Competition in this farm supply area comes from firms such as Tractor Supply Company, Sutherlands, Walmart, Rioux Hardware, McCoy's, Shoppa's Farm Supply, Hlavinka Equipment, and Wharton Feed. Also in Table 1 it can be seen that fuel contributed \$12,257,270 in sales with \$668,978 in total gross margins. Competition in fuels sales comes from firms such as PAK Petroleum, Rice Farmers Co-op, Sun Coast Industries, and Thomas Petroleum.

United Ag has 5.65 million bushels of grain storage. United Ag purchases, stores and merchandises milo, wheat, corn and soybeans. The cooperative offers marketing pools which enable participating members to gain from basis appreciation without having to make complicated marketing decisions. Members receive an advance payment on pooled grain. Table 1 shows that in 2013 grain contributed \$39,251,819 in total sales with \$1,653,450 in total gross margins.

In grain handling and merchandising, competitors of the cooperative include Coastal Warehouse in Wharton with its subsidiaries Hungerford Grain in Hungerford and Beasley, Nine Point Grain in El Campo and Garcia Grain. Cargill is an active grain buying competitor, operating a grain export terminal in Houston. In addition, various small brokers also compete to purchase grain.

Tables 2 and 3 present United Ag's statement of operations (i.e. income statement) and balance sheet, respectively. United Ag had a 2013 return on assets of 17.1%. This figure is calculated as net margins before income tax (\$6,811,308 from Table 2) taken as a percentage of total assets (\$39,734,917 from Table 3). In this same year, United Ag's financial leverage was a low 1.9, indicating a relatively low level of indebtedness. Financial leverage is computed as total assets (\$39,734,917) divided by total equity (\$21,317,490). United Ag has a high return on equity of 31.9%; computed as net margins before income tax (\$6,811,308) as a percentage of total equity (\$21,317,490). Note that 41% of United Ag's total before tax earnings came from patronage allocation of other cooperatives.

Table 2 shows that in 2013, United Ag earned \$6.8 million in net margins before income taxes. After setting aside both retained earnings and a provision for Federal income taxes, United Ag then declared a dividend of \$5.3 million to members. For grain and cotton, these amounts were \$0.30 per bushel of grain and \$19.16

Table 2. Statement of operations in US \$ (data provided by United Agriculture Inc., year ending April 30, 2013).

Cotton department	20,973,484	
Grain department	39,251,819	
Agronomy department	23,387,070	
Hardware department	16,799,748	
Fuel division	12,257,270	
Total sales		112,669,391
Cost of sales		95,186,178
Gross margin		17,483,213
Gin fees, allowances and other	3,356,184	
Grain fees	3,005,030	
Other department income	441,291	
Other operating revenue		6,802,505
Gross margin and other operating revenue		24,285,718
Expenses		20,312,054
Patronage allocation from other cooperatives	2,655,529	
Other	182,115	
Total other income		2,837,644
Net margins before income tax		6,811,308

Table 3. Balance sheet in US\$ (data provided by United Agriculture Inc., year ending April 30, 2013).

Accounts receivable	6,881,293	
Inventories	11,232,462	
Other	1,797,478	
Total current assets	19,911,233	
Property, plant and equipment	11,663,838	
Construction in progress and land	2,769,771	
Stock owned in other cooperatives	5,289,975	
Other	100,000	
Total fixed assets	19,823,584	
Total assets		39,734,817
Current maturity of notes payable	5,719,735	
Accounts payable – trade	5,107,457	
Cash patronage dividends payable	2,625,615	
Equity retirement payable	899,595	
Other	1,260,405	
Total current liabilities		15,612,807
Total long term liabilities		2,804,520
Total liabilities		18,417,327
Qualified equity	13,081,630	
Retained earnings	6,348,250	
Other	1,887,610	
Total equity		21,317,490
Total liabilities and equity		39,734,817

per bale of cotton. For the other divisions, these amounts were \$0.05 per dollar of agronomy purchases, \$0.02 per dollar of fuel purchases and \$0.04 per dollar of hardware purchases.

50% of the above dividends were paid, at year end, in the form of cash. The remaining 50% were retained as book credits. Of course the length of revolving period, for the pay out of these book credits, is yet to be determined. However, the Board of Directors has presently maintained a ten year revolving period for paying book credits to designated member-owners.

As can be seen above United Ag is financially sound. However, the Board of Directors and management have had several reasons to be discontent with the competitive performance of their agronomy division.

4. Agronomic sales environment

Table 4 illustrates the powerful nature of United Ag's local agronomy competitors. With 2014 annual sales of \$16.0 billion, Agrium (the parent company of Crop Production Services) is the largest retail agronomy dealer in the US (CropLife, 2015). Agrium operates in forty-four states and also internationally with 1,450 different locations and a total of 15,500 employees. Agrium is vertically integrated with upstream positioning in distribution, manufacturing, and mining.

Helena Chemical Company, while not nearly as large as Agrium, is still a formidable competitor operating in 39 states out of 348 different locations with a total of 4,000 employees. Helena is also a large retailer, distributor and manufacturer. J.R. Simplot operates in 14 states as well as internationally. Simplot has 85 locations and 10,000 employees engaged in retail sales to farmers and also in upstream distribution, manufacturing, and mining. Wilbur-Ellis operates in 18 states with 175 locations and 4,000 employees. Wilbur-Ellis is also active in distribution and manufacturing. Wilbur-Ellis owns one bentonite clay mine but, if compared to Agrium or J.R. Simplot, is not very active in mining.

Scale of operation allows these companies to develop, promote and sell their own brand name, trademarked products. The CropLife Top 100 2014 survey of the largest U.S. ag retailers accounted for an aggregated total of \$29.9 billion in sales. The top seven companies in the Top 100 each individually account for over \$1 billion in annual sales (Hopkins, 2015). These firms included, in rank order: Crop Production Services

Table 4. United Ag's agronomy market is shared by these firms.¹

Company Territory	Number of locations	Number of employees	Ownership and operator of mines	Retail sales rank in the CropLife Top 100 survey	Ownership of product brand names
Agrium (including Crop Production Services)					
44 States in USA plus international	1,450	15,500	Yes	#1	Loveland, Dyna-Gro, Echelon and more
Helena Chemical Company					
39 States in USA	348	4,000	No	#2	Nucleus, Outlaw, Sinker Ball and more
J.R. Simplot					
14 States in USA plus international	85	10,000	Yes	#7	Apex, Best, One, Simplot and more
United Ag					
20 Texas counties	5	100	No	Not ranked	None
Wilbur Ellis					
18 States in USA	175	4,000	Yes	#4	Foli-gro Max Set More-Leaf and more

¹ Amongst the above listed firms, United Ag has an approximate 20% market share.

(owned by Agrium), Helena Chemical, Growmark Inc., Wilbur-Ellis, CHS, Pinnacle Agriculture Holdings, and J.R. Simplot.

In comparison to such large competitors, United Ag serves only 20 counties in Texas and has five locations. For chemicals and seed, United Ag's source of supply had been Winfield, a division of the Land O'Lakes cooperative. Winfield offers a wide range of private label and branded chemicals and seed. However, in order to offer competitive pricing to its members, United Ag found it necessary to set low retail sales prices. United Ag's small size did not allow purchasing directly, on favorable wholesale terms, from the actual manufacturers of these products.

United Ag purchased fertilizer from the lowest cost source and had it delivered to its gulf coast facility in nearby Port of Victoria. Fertilizer must be purchased in advance. However, due to a lack of depth in futures market exchange contracts, fertilizer cannot be completely hedged so as to prevent a financial loss in the event of a price decline during storage.

Just as with the hardware division, agronomy sales posed potential problems associated with accounts receivable. However, agronomy unit margins were small while agronomy sales to individual members were normally quite large. Hence agronomy sales, when compared to hardware division sales, posed a far greater risk of accounts receivable default.

5. Pinnacle agriculture comes calling

Sanders, is a brand of Pinnacle Agriculture Distribution, Inc., which itself is a subsidiary of Pinnacle Agriculture Holdings, LLC. In 2014 Pinnacle had 160 operations in 26 states with 1,500 employees and was the sixth largest agronomy retailer in the US (CropLife, 2015). Pinnacle's major brand names include Sanders®, Providence Agriculture®, Performance Agriculture®, AgOne Application Services® and more. Unlike a few of its competitors listed in Table 4, Pinnacle does not have mining operations. During 2013, Pinnacle would acquire 9 companies and, in 2014, an additional 28 companies.

In the summer of 2012 Roppolo received a telephone call from Dean Williams, Executive Vice President of Pinnacle. Williams expressed that Sanders' was acquiring agronomy businesses and that they were interested in acquiring this portion of United Ag.

In the spring of 2013, the founder and CEO of Pinnacle Agriculture Holdings, LLC, Kenny Cordell, made a personal visit to United Ag. Relative to United Ag's producer-members, Roppolo knew, 'this [divestiture] had to be good for producers. Another competitor would help our producers.' With a hint of frustration, Roppolo added, 'we were trying to get somewhere where Sanders already was. We were still trying to 'get' precision ag. We had a lot of money and personnel time tied up with equipment.'

United Ag Chief Financial Officer April Graves initially wondered, 'why are you making me go through this? But then I looked at it with an open mind.' What her experience and analysis brought to light were underlying strategic and financial problems associated with the agronomy division. She states, 'we were selling products for less than they costs us, and hoping we would get a rebate on the back-end.' Such rebates, paid by Winfield, came at the end of the season and long after the initial product sale to United Ag members.

Table 5 shows the ten year average financial performance of the agronomy division, along with detail for the years 2008-2013. The ten year average profit was negative \$8,478. Agronomy division losses in the amount of \$1,974,955 occurred in the year 2010. For this particular year, United Ag purchased fertilizer during the previous summer, as it always did, so that product availability could be assured for the upcoming planting season. Such planting would occur during the winter and early spring; the normal planting time in the South. However, very wet weather occurred, thereby delaying planting. This resulted in competing retailers

Table 5. United Ag agronomy division performance (in US\$).¹

	Ten year avg.	2013	2012	2011	2010 ²	2009	2008
Seed sales	2,561,386	4,052,151	3,702,926	3,005,660	2,015,852	2,589,594	2,341,717
Chemical sales	4,081,574	5,929,434	3,754,324	4,036,703	3,076,759	2,932,477	4,508,049
Liquid fertilizer sales	6,139,717	11,954,906	9,315,242	8,155,556	5,366,066	5,441,858	7,045,386
Dry fertilizer sales	626,353	949,124	864,060	530,996	664,929	980,460	431,959
Other sales	64,726	501,452	20,484	50,223	30,003	0	13,918
Total sales	13,473,754	23,387,067	17,657,036	15,779,138	11,153,609	11,944,389	14,341,029
Cost of goods sold	12,141,097	20,541,023	15,568,390	13,750,861	11,690,141	10,721,997	12,637,399
Gross margin	1,332,657	2,846,044	2,088,646	2,028,277	(536,532)	1,222,392	1,703,630
Expenses	1,523,749	2,759,841	1,872,653	1,736,521	1,662,250	1,891,733	1,662,001
Profit from operations	(191,094)	86,203	215,993	291,756	(2,198,802)	(669,341)	41,629
Patronage from other co-ops	143,024	659,923	361,114	85,364	79,143	39,651	66,508
Other income and expense	144,800	333,628	214,497	181,728	144,685	129,711	108,644
Net margin (loss)	96,732	1,115,754	791,604	558,848	(1,974,955)	(499,979)	216,781
Cotton and grain cross- subsidy cost	105,210	369,771	496,853	185,474	0	0	0
Adjusted net margin (loss)	(8,478)	745,983	294,751	373,374	(1,974,955) ²	(499,979)	216,781

¹ Values within parentheses are negative numbers.

² As described in the text, United Ag's agronomy division experienced large losses in 2010. Between summer inventory purchases and subsequent winter sales to members (i.e. the normal southern planting time), fertilizer prices dropped by over 40%.

dropping their sales prices in a battle for market share. Without a way to hedge their inventory, the resulting average price decline of approximately 44% resulted in a large loss for the agronomy division of United Ag.

The potential for a re-occurrence of such large losses raises the following question. Namely, if a division operates at a breakeven level, while serving only a portion of the membership, is such a division worth the risk of a sizable loss that could potentially adversely impact the entire cooperative?

United Ag operates multiple patronage pools by which profits are allocated amongst the different cooperative divisions. Under such a system, patronage dividend percentages are calculated and paid to members, separately, by each division. Thus different patrons of the same division receive the same patronage dividend percentage. However, a patrons' overall total patronage dividend is a function of the different amounts of business the patron has done with each separate division.

In the years 2011 through 2013, Table 5 shows that cross-subsidies paid from the grain and cotton division to the agronomy division were \$185,474, \$496,853 and \$369,771, respectively. These were actually cross subsidies transferred within the cooperative. 'We were using grain and cotton annually to fund agronomy... with rebates [cross-subsidies] based on yield.' Hence, these rebates were received by agronomy patrons at the expense of cotton and grain patrons; in other words, under multiple patronage dividend pools this necessarily lowered the patronage dividend percentages received by both cotton and grain patrons.

Even so, 'we have seen many of our loyal agronomy customers go elsewhere, and when we inquire why, it is never service, but always price' (Roppolo, 2014: 12).

In the fall of 2013, Pinnacle executives visited with United Ag's board of directors and presented a proposal to buy all agronomy assets and also an associated non-compete agreement. By January 2014, the United Ag Board, its legal counsel, accountant and management were considering the decision very seriously and a confidentiality agreement was signed between the parties. Pinnacle began evaluating assets and accounts so

as to determine the purchase value of the business. On their side, the United Ag board continued to evaluate the transaction very closely.

6. Making a decision

There were many reasons to exit the agronomy division: United Ag was losing agronomy patron purchases to the competition; the division entailed an exposure to risk that could not be hedged; margins were small (Table 5); and Pinnacle was willing to pay \$3,700,000 over book value. On the other hand, like all of the different divisions of United Ag, agronomy covered a portion of United Ag's total overhead costs. This amount was 20% of total cooperative overhead, for a charge against (i.e. covered by) agronomy equal to \$184,573 in 2013.

An important question concerned exactly who should make the decision. If the decision were voted on by the membership, then discussion would occur widely throughout the farming community. Competitors such as Crop Production Services, Helena, Simplot and Wilbur Ellis would likely use this uncertainty as a tool to acquire the patrons of United Ag as their own new customers. A loss of patrons was a serious threat. This was because the agronomy division, and its assets, would have little sales value without a strong customer base.

On the other hand, if the Board alone made the decision to sell, public discussion could be avoided and a thus a much higher sales price obtained. Also, this was a small community and some board members had friends and relatives working for United Ag's agronomy division. Other board members had friends working for companies that competed with United Ag's agronomy division. Furthermore, legal advisors informed the Board that it had the right to make the decision as a matter of its regular business. Even so, the Board was aware that a surprise sale announcement, even for good reason, would be challenging from a member relations point of view.

Apart from the above, Pinnacle had been geographically expanding toward United Ag's territory. With or without a sale, it was evident that Pinnacle would soon become a local competitor General Manager Roppolo and the Board faced at least two very tough choices: how should a decision be made and what should that decision be?

7. Questions for discussion

1. What is the main goal of an agricultural supply cooperative?
2. How should a farmer-owned cooperative best decide which business activities to undertake? How should a farmer-owned cooperative best decide whether or not to discontinue a business activity?
3. Related to the above, how should an individual business division within a cooperative be evaluated? In your answer, please discuss both short run and long run considerations.
4. Should the decision to sell the agronomy division be made by a vote of the membership or by the Board of Directors?
5. Do you recommend that United Ag sell the agronomy division?

Supplementary material

Supplementary material can be found online at <https://doi.org/10.22434/IFAMR2016.0119>.

Teaching note.

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References³

- American Institute of Cooperation. 1942. *American Cooperation 1941*. IICA, Washington, WA, USA.
- CropLife. 2015. CropLife top 100: 2014 ranking of the largest ag retailers in the U.S. Available at: <http://www.croplife.com/top100>.
- Dunn, J. 1988. Basic cooperative principles and their relationship to selected practices. *Journal of Agricultural Cooperatives* 3: 83-93.
- Hopkins, M. 2015. 12 things you might not know about the CropLife 100. *Croplife* 178: 44.
- Nourse, E. 1992. The place of the cooperative in our national economy. *Journal of Agricultural Cooperation* 7: 105-110.
- Porter, M.E. 1985. *Competitive Advantage*. The Free Press, New York, NY, USA.
- Roppolo, J. 2014. The end of an era: sale of agronomy. *Connection by United Ag*. 2014: 12-13.
- Royer, J. 2014. The neoclassical theory of cooperatives: part I. *Journal of Cooperatives* 28: 1-9.
- Torgerson, R.E., B.J. Reynolds and T.W. Gray. 1997. Evolution of cooperative thought, theory and purpose. University of Wisconsin Center for Cooperatives. (Reprinted from the Future of the Food and Agricultural System meeting in Las Vegas, NV, USA) Available at: <http://tinyurl.com/yd46jvqs>.

³ References are for both the case study and the associated teaching note.