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By:

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Redefining Agricultural Input Supply

XS Inc. is a Raleigh, North Carolina based start-up company that develops and markets web-based tools that improve the supply chain in the agricultural input sector. XS Inc. offers two separate platforms: XSAg.com and Nterline. XSAg.com is a well-known on-line public exchange for growers, dealers and manufacturers to trade agricultural seed, chemicals, machine parts and animal health products. Alternatively, Nterline is a private exchange platform that caters to agricultural retailers, distributors and manufacturers targeting transactional efficiencies and integration. This case explores the challenges of XS Inc. in developing a successful marketing plan while navigating the complex relationships embedded in the incumbent agricultural input channel.

The Structure of the Agricultural Input Industry

The US agricultural input sector is characterized by few large manufacturers, few large distributors, and a large number of retailers located throughout the country. This expansive supply chain distributes fertilizer, seeds, chemical pesticides and equipment to over 1,000,000 crop farms -some 300,000 of them cultivating over 500 acres each.

The structure of different input manufacturers is rather similar. There are more than 200 agricultural chemical manufacturing companies, but only few with substantial R&D capacity and proprietary chemistries (e.g. Dow, DuPont, Monsanto, Syngenta, BASF/Cyanamid, Aventis, and Bayer). Similar structure is observed in the seed industry where over 700 independent regional seed companies distribute seed throughout the US. However, there are only a few national seed companies with R&D capacity and proprietary germplasm, most of which are subsidiaries of integrated chemical and biotechnology companies (e.g. Pioneer -a subsidiary of DuPont, DeKalb and Asgrow -subsidiaries of Monsanto, Mycogen -a subsidiary of Dow, and so on). Animal health, fertilizer and equipment manufacturers are similarly concentrated. Recent consolidation of large manufacturers has been driven by, among other factors, large investments in new technologies, globalization, increased regulation, and a consolidating farming sector.

There are few major wholesale distributors in the US, many of which were originally fertilizer companies. As a service to independent retailers around the country, wholesalers began to distribute crop protection chemicals and in some cases seed. In the 1960s and 1970s, the chemical pesticide portion of distributors increased. Yet, basic manufactures maintained low margins for distributors, asking little more than storage, transport and invoicing services.

In the 1980s and 1990s, major wholesale distributors forward-integrated to retail. Large companies like Terra, IMC, UAP, Helena, Collingwood, Cargill, and others acquired and began to operate chains of retail outlets in many parts of the country. Large supply cooperatives like Growmark, Farmland and Cenex/Land O'Lakes have expanded their operations in both retail and wholesale distribution and have sought economies of scale through joint ventures (e.g. Farmland/Wilbur Ellis' JV –Willfarm). Wholesale distributors' interest in retailing was motivated by continuously eroding wholesaling margins, increasing bulk deliveries from manufacturers directly to retailers, and value added opportunities through new technology (e.g. precision agriculture and biotechnology).

In contrast with the manufacturing and wholesale industries, the US agricultural retailing industry is expansive with approximately 15,000 outlets operating around the country. The majority of these retailers are relatively small, single location operations (Exhibit 1). Sales are more concentrated, however, with an estimated 70-75% of pesticide and fertilizer sales provided by the top 150 retail companies.

The retailing industry has been characterized by modest consolidation in the last two decades. Smaller retailers have come increasingly under pressure in recent years due to increased environmental regulation, bulk storage investments, investments in specialized contract chemical application equipment, and retail margin erosion that have favored larger dealerships with higher volume purchases. However, economies of scale from such factors are rather modest and typical retail stores with \$3-6 million in sales have been able to compete effectively, even as stand alone operations.

The Input Supply Chain

The majority of agricultural inputs are sold through either a two-step or a three-step supply chain (Exhibit 2). The three-step supply chain is used throughout most of the crop protection industry, especially in the Midwest. The two-step supply chain is used more extensively for fertilizers, seeds, farm veterinary products, and agricultural chemicals for fruit and vegetable crops. The three-step system has the manufacturer shipping products to distributors that can either take ownership of the product or act as agents for the manufacturer. The agent arrangement is more common, allowing the manufacturer to pay the distributor a handling fee to distribute the product to retailers. This also allows manufacturers to actively market their products directly to retailers (via discounts, rebates, and other incentives). The two-step system works in a similar fashion, allowing the manufacturer to bypass the distributor altogether, and sell directly to retailers. This channel is becoming more common as agricultural retailers are becoming larger and more able to take over the role of the distributor.

In any given year, manufacturers need a certain amount of storage for their products, part of which is supplied by distributors and retailers. If more storage is needed than the distributors and retailers are willing to carry, then public warehouses are employed. To avoid this extra channel participant, most manufacturers offer stocking

programs to both retailers and distributors, providing incentives for them to take products early in the season. This allows the physical storage assets of the entire channel to be utilized throughout the year.

Manufacturers heavily depend on retailers for reaching their customers. This reliance creates significant competition among manufacturers for retail shelf space. Manufacturers commonly use complex programs with volume discounts and rebates to secure adequate shelf space. Manufacturer programs competing for retail space are especially fierce in the agricultural chemical market. Since manufacturers do not typically produce a full range of products, retailers often stock products from many manufacturers. Retailers of seed tend to be more dedicated, usually carrying seeds from only a few (1-3) manufacturers. Volume-driven incentive programs encourage retailers to aggressively reduce prices, especially in years where demand is low in their regions.

Agricultural retailers tend to carry multiple input categories (i.e. fertilizer, seed, and crop protection), as well as individual product brands. Most agricultural retailers derive the majority of their revenues from fertilizer and crop protection products (Exhibit 3). Retailers have been slowly adding seed to their product portfolio. This interest has been recently accelerated due to the widespread adoption of bioengineered crops and resulting substitution and complementarities between seed and agricultural chemicals (e.g. herbicide-resistant, insect resistant crops).

In addition to product sales, retailers provide a number of services, increasingly becoming knowledge partners to the farmer. Services include custom application of fertilizers and agricultural chemicals, scouting of weeds and insects, soil analysis and mapping, yield mapping and others. Indeed, agricultural retailers frequently have agronomists on call to consult with farmers on site-specific agriculture issues. Retailers also provide a number of product-specific services, including complaint handling and product returns. The costs of many of these services are added directly to the product sale price. Products like agricultural chemicals and seeds, along with relevant services, are now often sold with a bundled price (Exhibit 4). However, the pricing system of products and services varies widely across agricultural retailers.

Supply Chain Inefficiencies

Over the years, the structure of the supply chain in the agricultural input sector has evolved to facilitate the transactions of manufacturers, retailers and farmers in the presence of some key challenges. Indeed, inherent temporal and spatial complexities, localized markets, significant regulation, discontinuous product information flows, and inefficient technology characterize the agricultural input sector. All of these conditions contribute to significant supply chain inefficiencies.

In any given year, agricultural input use is concentrated in short periods of time, but it is spatially dispersed over a vast geographic terrain. This contrasts the production of most agricultural inputs that occur continuously throughout

the year in few large-scale production facilities. These conditions create a supply chain characterized by large inventory buildups and complicated logistics.

Further complicating the agricultural input supply chain is a highly uncertain and localized demand. Variable weather conditions and differential pest infestations from one year and from one location to another make choice of inputs highly uncertain. In turn, these conditions make even single-season forecasts of input use highly stochastic and necessitate inventory buffers, as well as distribution and re-distribution to satisfy local demand.

The strict regulatory system that governs agricultural seeds, chemicals and pharmaceuticals also affects the functions and efficiency of the agricultural input supply chain by requiring compliance, certification, and verification protocols. The chemical, seed, and veterinary industries are highly regulated by the U.S. and State governments. While the Federal Government monitors manufacturers, retailers are also heavily regulated by states on a number of services they provide (input application, storage, etc.). In addition, handlers (transporters, warehouses, etc.) all have to be licensed to hold products. Verification of regulatory compliance at every step requires a complex information trail that follows most agricultural inputs and adds to the complexity of the supply chain.

Low margins, variable firm size and low degree of integration has often kept distributors, transporters and retailers from investing in information technologies that could facilitate supply chain functions, such as electronic data interchange (EDI). Market transactions (e.g. sales, product returns, rebates), as well as regulatory compliance and certification transactions occur often through paper-based systems and require considerable data entry and record keeping. Accordingly, information flows do not generally allow product tracking along the agricultural input supply chain and make coordination of dispersed demand, supply and inventories over time and space difficult and costly.

XSInc.com

The basic concept of XS Inc. emerged as a solution to the chronic information problems that have plagued the agricultural input supply chain. CEO Fulton Breen had first-hand experience with such problems in his 20-year tenure in the agricultural chemical industry, first with Union Carbide and later with French chemical giant Rhone-Poulenc. At Rhone-Poulenc, Breen built a strategic plan to lower the cost of delivered products. This plan integrated the use of the Internet, Intranet and inventory tracking systems that were already in place to link customers to the company's many locations, thereby eliminating substantial transaction and coordination costs.

With his deep knowledge in electronic planning systems and broad market experience, Breen was constantly searching for solutions through new information technologies, especially those based on the rapidly evolving Internet. In early 1998, he continued to mull over a plan for a neutral public exchange linking producers, retailers and manufacturers marketing surplus inventory. This basic concept would eventually be turned into a promising startup, as the Internet revolution was unfolding.

Randy Hompesch, a long time friend and information technology specialists at Rhone-Poulenc, added technical detail to Breen's business concept and agreed to build the technology behind it. Bill Barton, a long time management and strategy consultant at Booz Allen & Hamilton, was also brought into the project at its early stages. In September 1998, Barton took the rough business plan that Breen designed some six months earlier and fine-tuned it, turning it into XSChem.com. XSChem.com began to take shape in November 1998, when Breen and Barton got their start-up funds -some \$500,000 from a group of "angel investors". In January 1999, after three months of working evenings and weekends to develop the platform for Internet trading, Breen and Barton took the final plunge -they quit their jobs and launched XSChem.com.

By the summer of 1999, they had raised \$3 million from individual investors and had decided that it was time to broaden the product base of the company. At the end of August 1999, XSChem.com changed its name to XSAg.com, and began offering seeds, veterinary products and agricultural machine parts. Along with the broad base of products, advances in the platform increased the number of services and added trading options such as reverse auctions and fixed price bids, as well as the option to not participate anonymously.

The most recent round of funding came in November of 1999. At that time, a strategic plan for achieving quick growth called for beefing up the technology, marketing and database management systems of XS and adding some 20 new employees for implementation. Morgan Stanley Dean Witter Venture Partners brought \$20 million in venture capital for this new round of marketing and technical expansion of the virtual marketplace.

Technology: On-line Solutions for the Agricultural Input Market

XSAg.com

Breen's early plan called for a forum where suppliers and producers could anonymously list and purchase products through a full-service auction platform. This plan was fully executed through the establishment of a virtual exchange called XSChem and later XSAg. XSAg is a neutral, third party exchange that allows buyers and sellers to transact on-line. Since XS does not take ownership of any products, the majority of the company's revenue comes from a 3% transaction fee on each order placed through XSAg.com.

There are three methods of listing products on the XSAg system. The simplest is the Fixed Price Bid. In this exchange set-up the seller posts a product offering on the XS website, specifying price and quantity. When a buyer comes across the desired posting and is agreeable to the price and quantity, the buyer simply selects a "buy" button that automatically initiates the transaction. The second method is the Name Your Price exchange. In this set-up the buyer, instead of the seller, initiates the transaction. Buyers post a bid stipulating the price at which they are willing to transact. Sellers then shop the system for products that are being demanded, and when one is found that meets or exceeds their reservation price, they select a button and the transaction is initialized. The most complicated method

of exchange is the on-line auction. Here a seller posts a product; buyers are then allowed to post bids on the product. After a given amount of time the highest bid is awarded the transaction, which is automatically formalized.

The ability to anonymously transact in all three systems is significant to many sellers and buyers. A retailer, for example, who may be selling excess inventory on the Internet at lower prices than those in his local store, could create feelings of ill will amongst customers. Other sellers may prefer to hide the status of their inventories -the kind of information that could be leveraged by buyers in price negotiation. Of course, some sellers may have an interest in revealing their identity for the purpose of building a brand name or reputation. The XSAg platform allows both kinds of transactions.

Anonymity creates counter party risk. XSAg minimizes this risk by holding funds in an escrow account between the time that the deal is made and the product is delivered. The funds are held in a Bank of America account, and are released upon notification by the buyer that the product has been received and meets pre-arranged specifications.

In order to deal with the complexities of the agricultural input market, XSAg collects information about the exchange participants up-front. From this information, an individual profile is established that allows the exchange to coordinate logistical, financial, and regulatory concerns. Each user must provide a "shipping location." From this location freight quotes are automatically calculated for individual transactions. Users must also submit the financial information pertaining to how they will pay for specific purchases, through one of the methods accepted by XSAg. XSAg establishes credit before allowing any transaction to occur. Lastly, users must supply appropriate pesticide licenses in order to trade; the validity of licenses are verified with appropriate state licensing commissions.

The XSAg system provides the retailer an immediate market for the sale of excess inventory to other retailers, or to farmers nationwide. It also facilitates the de-bundling of the retailers' products and services. Price transparency allows farmers more information about product pricing -information that has also been frequently used in price negotiation with local retailers. Increased price transparency and supply chain efficiencies have translated into an estimated range of 5-25% price reductions.

Price savings and an open market environment attracted immediate attention and a large number of registered users. Some 60,000 users are registered with XSAg, the majority of which are farmers. This attention has resulted in the rapid development of a very strong company brand name. XSAg.com has consistently ranked high among the sites, which commercial farmers are aware of and visit (Exhibit 5).

The speed by which XS Inc. secured brand equity in the input market is also due to a number of successful partnerships, the first of which was with the Meredith Corporation in January 2000. The relationship was established to boost the awareness of the farming community about XS Inc. One of Meredith's websites, @agriculture Online is one of the most heavily visited sites for agricultural information. XS Inc. gained an

advertising link on the @agriculture Online website, and space in Meredith's print publications such as *Successful Farming*. With a circulation of 465,000 and a readership of 1.2 million, *Successful Farming* is the largest paid circulation farm magazine in the US.

XSAg.com also recently formed an Internet alliance with Farmpartner.com in Europe. Farmpartner was the first agriculture trading exchange in Germany and has recently expanded into France quickly amassing 8,000 registered users. This alliance has allowed the development of a common platform for users on two continents and demonstrated the possibilities for expanded economies of scale and scope for the trading technology of XS Inc. XS Inc. has also aligned with three spot market commodity exchanges, citrus (UltimateCitrus.com), rice (Planetrice.com), and cotton (eCotton.com). These alliances allow users of those sites access to XS's input exchange. XS has also partnered with Farm Credit and Wells Fargo, to augment the XS system's credit services for farmers.

Nterline

Nterline is the latest offering of XS Inc., a web-based platform that improves the efficiency of the agricultural input supply chain. The Nterline system differs from the XSAg system. Instead of offering public exchange, Nterline facilitates the traditional agricultural input distribution system with web-based information tools. The benefits to the retailers and manufacturers come in the form of cost reductions and efficiency improvements through a system that facilitates marketing and order information flows.

Instead of targeting farmers as primary users, Nterline is focused on providing services to the agricultural retailer. Nterline provides the retailer with the means to create a virtual storefront. This storefront can facilitate sales directly to the retailer's customers via robust, customized full service web commerce sites. Importantly, the virtual storefront can facilitate farmer-retailer interactions, information exchange and storage resulting in transactional efficiencies. For instance, information on historical purchases and relevant invoices can be easily made available to the farmer through the virtual storefront. Nterline also provides technologies to facilitate transactions. Farmers can directly order products on-line, fill out information for rebates or product returns.

Farmer-retailer on-line transactions can also improve the efficiency of retailers' interactions with other participants upstream in the supply chain. For example, the retailer can send the farmers' orders directly to the distributor or the manufacturer, thereby creating a more automated and streamlined channel. In order to further integrate the inflow of such transactional information with the typical information systems available to most manufacturers, XS Inc. partnered with Clarkston-Potomac. Nterline now easily integrates with inventory and database management tools (e.g. SAP) available to most manufacturers and distributors.

Specific tools within Nterline suite, such as geographic targeting, fixed and dynamic pricing (pricing response to demand changes), credit, escrow regulatory compliance verification, inventory and delivery tracking, freight and

logistics facilitation; provide manufacturers, distributors and retailers with a number of supply chain tools that could improve the efficiency of the agricultural input channel and provide them with valuable assets for improving their offerings to farmer-customers.

The value capture model created by Nterline differs drastically from that of the XSAg platform. XSAg has resulted in predominantly lower costs for the agricultural producer, while Nterline lowers the supply chain costs for the retailer and potentially the distributor and the manufacturer. In turn, Nterline generates revenues for XS Inc. through transaction fees, but also subscription charges and maintenance fees to the owner of the dedicated sites.

By September 2000, XS Inc. had moved its business focus from XSAg.com to Nterline. The majority of employees were repositioned in the company to facilitate the development of the new Nterline system.

E-commerce Competition

There is significant competition for both the XSAg system, as well as the Nterline offering. An eclectic list of competitors is provided in Exhibit 6. For instance, several Internet startups compete to some degree with XSAg.com. NetSeeds.com provides locale-specific seed varieties for sale with delivery price included. Powerfarm.com offers chemicals and seeds from the top 5 manufacturers, as well as general agricultural supplies and credit. Rooster.com provides input ordering, as well as storefront creation. The early boom of the e-commerce market allowed many firms to develop technology through ample venture funding. More recently, expectations became less optimistic and funding dried-up. These market dynamics are likely to force firm consolidation in the near future in order to wring returns from an over capitalized market. It is therefore likely that many of the competitors listed here may not exist in the near future.

A more sustained competition may come from companies developing tools that facilitate supply channel operations. For instance, E-Markets.com has a system that allows streamlining input ordering and inventories and it is offered along with other integrated product offerings -such as pricing strategy tools, production contracting and grain exchanges. Competitors may even come from larger technology developers that are not specific to agriculture. One key competitor for the Nterline system is Ariba, which powers competitor Rooster.com. Another example of a supply chain facilitator is Novator Inc.; it produces tools that organize and personalize customer information, makes sites navigable and easy to use, and provides OBI (Open Buying on the Internet Consortium) architecture. The OBI architecture provides infrastructure for storefronts and coupling customer information to personalize marketing techniques that is utilized by companies such as BASF Corporation and Dupont.

Large manufacturers have also been developing open systems for supply channel management for retailers, which could compete with Nterline. For example, Monsanto launched AgCommerce, American Cyanamid has continued to make investments in its Harvest Partners system, and Bayer launched BayerValue. Manufacturers have

historically been unable to develop a supply chain/information system that is broadly accepted by the bulk of the channel. Many of these efforts have failed due to the inability to coordinate dedicated legacy systems and bring along smaller retailers that lacked technology altogether. The development of easy to use web-based solutions, however, could provide the impetus for such industry-wide efforts and provide a threat to the Nterline platform.

Market Readiness

The success of both XSAg.com and Nterline hinges on the readiness of the market for the type of tools offered through these two platforms. For XSAg.com, market penetration depends mostly on the readiness of certain producer segments. XS Inc. refers to four segments in identifying the most relevant markets for the services of XSAg.com (Exhibit 7). The top segment involves a small number of farmers that account for more than 40% of farm sales and input purchases. This 5% of farmers is targeted directly by manufacturers due to the volume of their purchases. The second segment consists of larger, technically savvy farmers. This is the group of farmers that seems to be the most likely customer base of XSAg. The third segment contains mostly medium sized farmers. Farmers in this segment could develop into an increasingly important segment for XSAg, as they become more comfortable and able to use the Internet for purchasing. The fourth tier of the triangle is comprised of the smallest farmers. Within this context, XSAg target market is about 50% of the total number of crop producers -some 200,000 farmers in the medium to large size range (between 1000 and 7500 acres).

Access to the Internet and willingness to use it as a medium for market transactions are equally important characteristics of farmers in the customer base for XSAg.com. National surveys suggest that farmers have quickly embraced the Internet (Exhibit 8). Larger farmers have tended to adopt the technology faster. A 1999 NASS survey found that larger farms (sales greater than \$250,000) were twice as likely to own or lease a computer and have Internet access than smaller farms (sales less than \$249,999). Specifically, 72% of larger farms and 37% of smaller farms owned or leased a computer in 1999, while 52% of larger farms and 27% of smaller farms had Internet access. Such adoption levels have increased in the last two years, putting the Internet in the hands of a majority of US farmers, especially within the segments targeted by XSAg.com.

Access to Internet has not automatically translated into market transactions, however. In 2000, only one out of ten farmers made on-line purchases (Exhibit 9). Producers seem to use the Internet predominantly to access information. At the same time, the type of information sought out by producers seems to parallel their market interests (Exhibit 10). The types of products that producers are most likely to purchase on-line are tractor parts, pesticides, and financial products (Exhibit 11). Producers who transact on-line seem to be price conscious. Competitive prices have been consistently cited as the primary reason for purchasing agricultural products on-line (Exhibit 12). Lack of service has been a primary barrier to purchasing products on-line (Exhibit 13).

Service could indeed become the main divide between on-line and on-site input purchases. Widespread use of low dosage chemical pesticides, advanced seed and site-specific technologies have increased the need for specialized knowledge and information as well as services for farmers. Agricultural retailers are becoming one-stop service stations for agricultural producers with just such needs.

As with farmers, not all retailers are equally vested in information technology. Retailers vary dramatically in size and sophistication. The great majority of dealerships have Internet access (Exhibit 14). However, the number of dealerships using the Internet to source products or to interact with manufacturers is still very small. Hence, it appears that the market for content and supply chain optimization tools for agricultural retailers has substantial upside.

Supply Chain Friction

Both XSAg and Nterline attempt to disintermediate portions of the supply chain in the agricultural input market. While disintermediation can lead to efficiencies, it can also cause tensions.

The XSAg exchange creates an interesting paradox for agricultural retailers. Agricultural retailers can use the XSAg system as a means to unload extra inventory and manage inventory costs. However, as they offload unwanted inventory, generally at discounted prices, they are also creating a low priced parallel market. In effect, by utilizing the XSAg system, retailers support a transparent competitive system. In such cases, benefits and costs are not evenly distributed. Retailers who use XSAg tend to benefit from improved inventory management and expanded markets. In an environment where manufacturer incentive programs are volume-based, benefits from expanded markets and scale can be meaningful. Agricultural retailers who do not use XSAg, however, experience margin erosion from both increased competitive pressure in their markets and increased price transparency that improves the bargain position of their customers. Naturally, there has been a mixed response towards XSAg within the agricultural retailing community.

XSAg and Nterline create an interesting paradox for input manufacturers as well. While the tools developed by XS Inc. allow welcomed improvements in the agricultural input supply chain, their implementation may hinge on retailer and distributor participation. As manufacturers are often heavily dependent on agricultural retailers to execute their marketing programs, they may be reluctant to jeopardize such relationship by adopting a system that is accepted by only a portion of the channel.

The Challenge

Given the market environment and competitive conditions faced by XS Inc., you are asked to develop a detailed marketing plan for XSInc.com and its technological offerings, XSAg, and Nterline. The marketing plan should

prescribe an overarching strategy addressing: market identification, product/service placement, pricing schemes, and promotion, as well as, potential alliances.

Finally, your assumptions about the future inflow of technologies in the input market, as well as relevant trends in agricultural commodity prices should be made explicit.

Exhibits

Exhibit 1. Ag Retailing Industry: Share of Retail Outlets by Firm Size

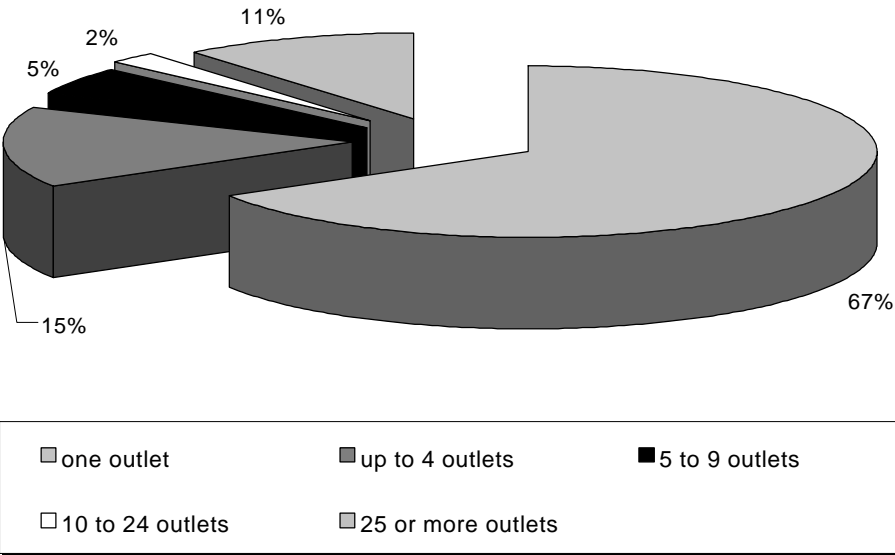


Exhibit 2. Agricultural Input Supply Chain Configurations

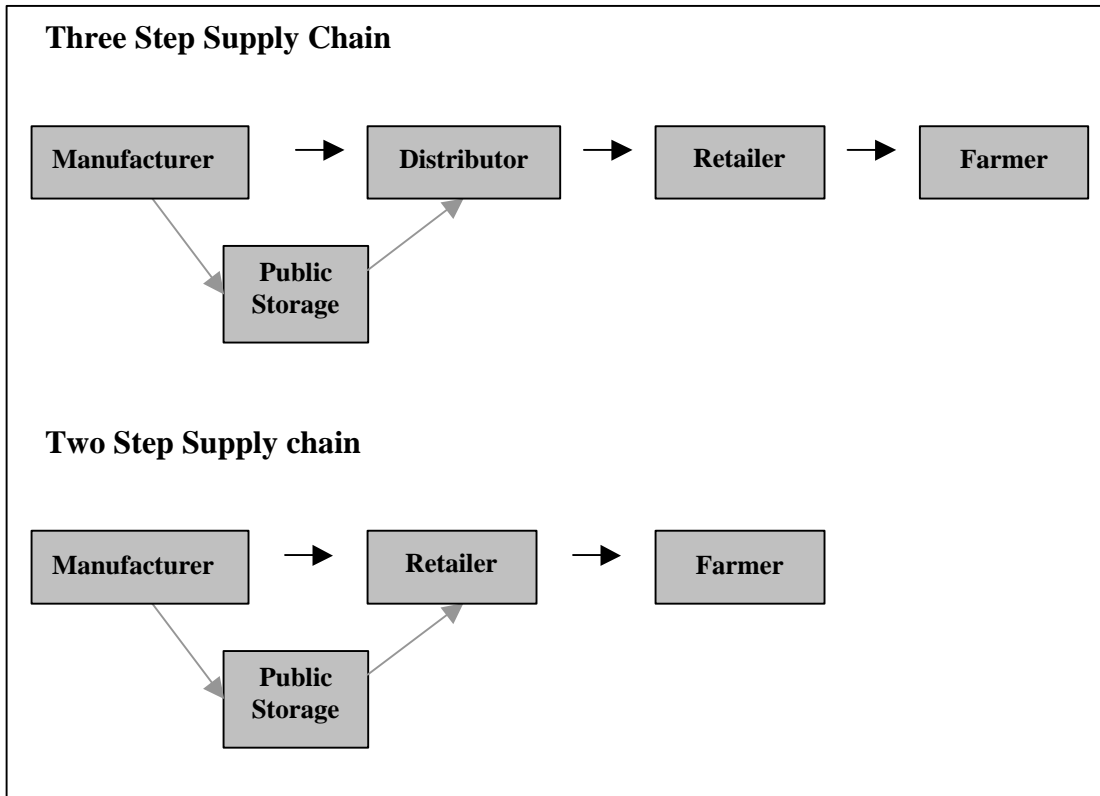


Exhibit 3. Revenue Mix of the Top 100 Dealers

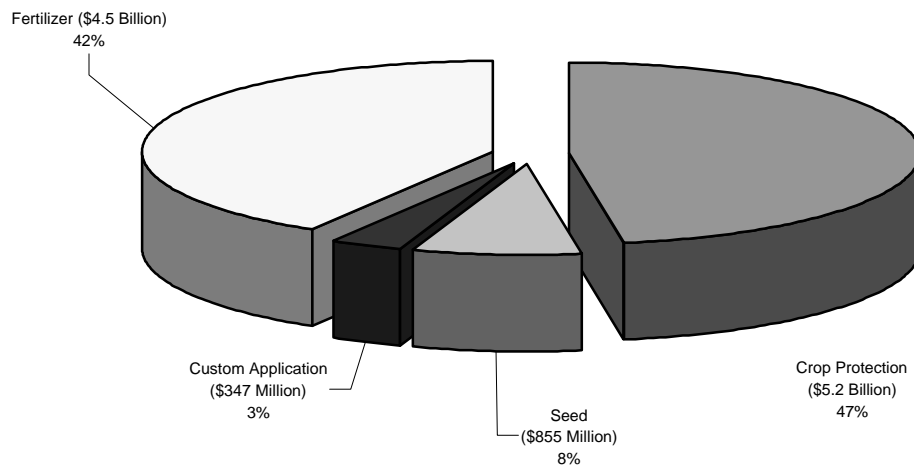


Exhibit 4. Retailer Bundling Price Structure

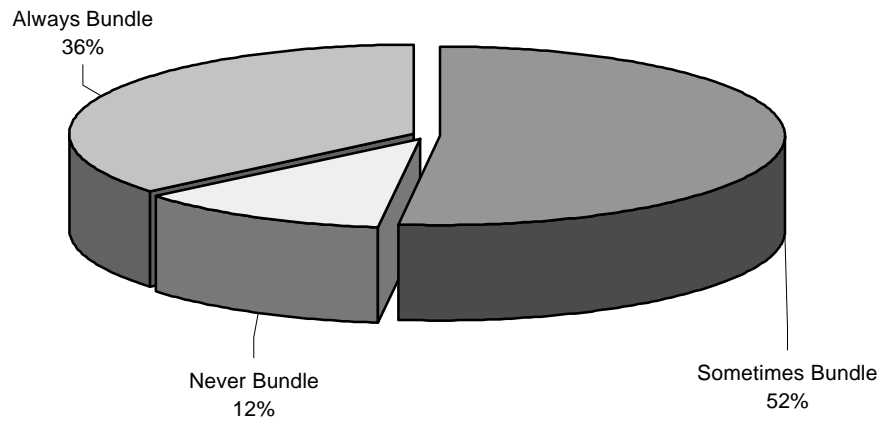


Exhibit 5. Experience with Ag-Related Websites

Top 10 Ag websites growers were aware of:		The top Ag web sites growers visited at least once:	
DirectAg.com	61%	DirectAg.com	33%
XSAg.com or XSChem.com	57%	XSAg.com or XSChem.com	38%
Agriculture.com	51%	Agriculture.com	30%
FieldersChoiceDirect.com	41%	AgWeb.com	20%
AgWeb.com	38%	Vantagepoint.com	17%
Vantagepoint.com	38%	e-markets.com	19%
e-markets.com	37%	Farms.com or Agrochemicals.com	18%
Farms.com or Ag chemicals.com	36%	Farmbid.com	15%
Rooster.com	34%		
Farmbid.com	31%		

Exhibit 6. Agricultural E-commerce Firms, Ownership, and Products

Name	Ownership	Products	Model
XSAg.com	XS, Inc.	Chemicals, fertilizer, seeds, animal health, parts	Exchange, auction
Nterline	XS, Inc	Business, tools	ASP
NetSeeds.com	NetSeeds, Inc.	Seeds	Storefront
E-Markets.com	Various investors	Inputs, pricing tools, information, grain	Exchange, ASP, Classifieds
Powerfarm.com	Ag Services of America	Chemicals and seeds, credit, parts, information	Direct Sale
Rooster.com	Cargill, Cenex Dupont	Information, inputs and ag commodities	ASP, Exchange
DirectAg.com	DirectAg, Inc.	Seeds, chemicals, parts, animal health, information	Storefront
Farms.com	Farms.com, Ltd.	Parts, chemicals	Classifieds, auction
Equipment-locator.com	Equipment Locator Service	Equipment and machinery	Classifieds, search engine
Farmsource.com	Monsanto	Marketing programs, chemicals and seeds	Catalogue information
Farmbid.com	Farmbid.com, Inc.	Animal health, chemicals, farm and home supplies	Storefront, classifieds, auction
FarmWarehouse.com	Applied Industrial Technologies	Parts, farm and home products	Storefront
FastFinder.com	Fast Finder Online	Equipment, machinery, supplies	Classifieds
Deere.com	Deere & Co.	Equipment and parts	Dealer Locator
AgWeb.com	Agweb.com	Informational services	Storefront
USAgribuy.com	US Agribuy	Equipment, ag inputs	Auction
Vantagepoint.com	Vantage Point Network, LLC	Information services	Storefront
AgPartsOnline.com	Wickham Tractor Company	Parts	Storefront
BayerValue.com	Bayer Corporation	Bayer chemical and agricultural products	ASP
FieldersChoiceDirect.com	Landec Ag, Inc.	Seed	Storefront
AgriPlace.com	Verida Internet Corp. (Canada)	Fertilizer, chemicals and seed	Storefront
CropsOnline.com	CropsOnline, LTD. (UK)	Output and machinery sales	Classifieds
MachineryLink.com	MachineryLink.com	Machinery sales and parts	Exchange, classifieds
Agrifusion	Agrifusion	Dealer store fronts	ASP
iTradeNetwork	DTN	Busiess tools, Information services	ASP
HarvestPartner	American Cyanamid	Information	ASP
Agcommerce	Monsanto	Businesstools, information	ASP

Exhibit 7. Farmer Demographic Pyramid

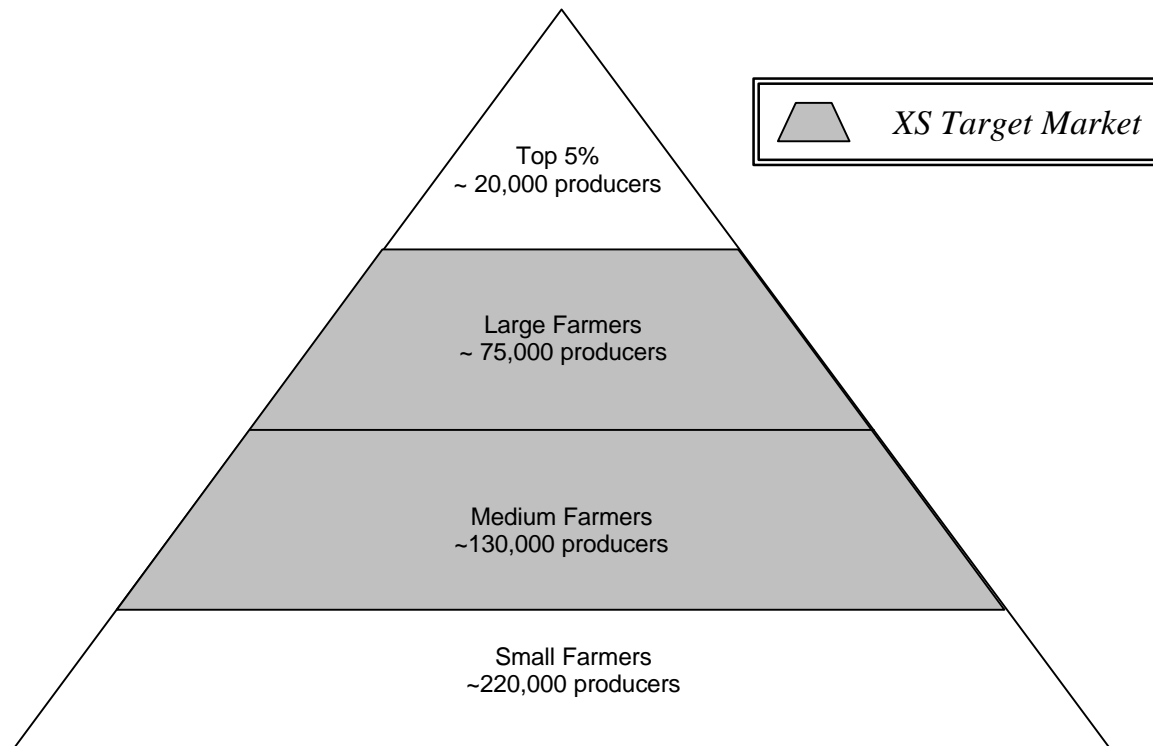
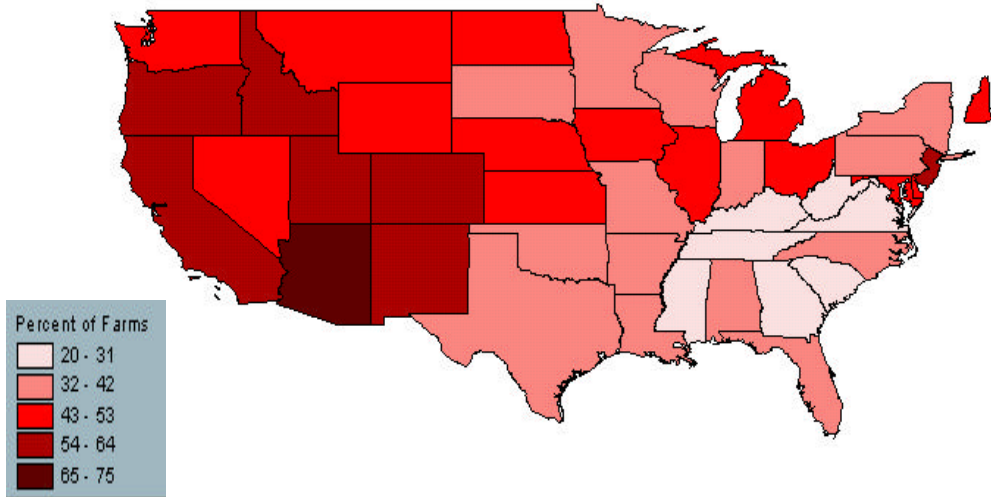


Exhibit 8. National Farmer Adoption of Information Technology

Percent of Farms that Own or Lease a Computer



Percent of US Farms with Internet Access 1999

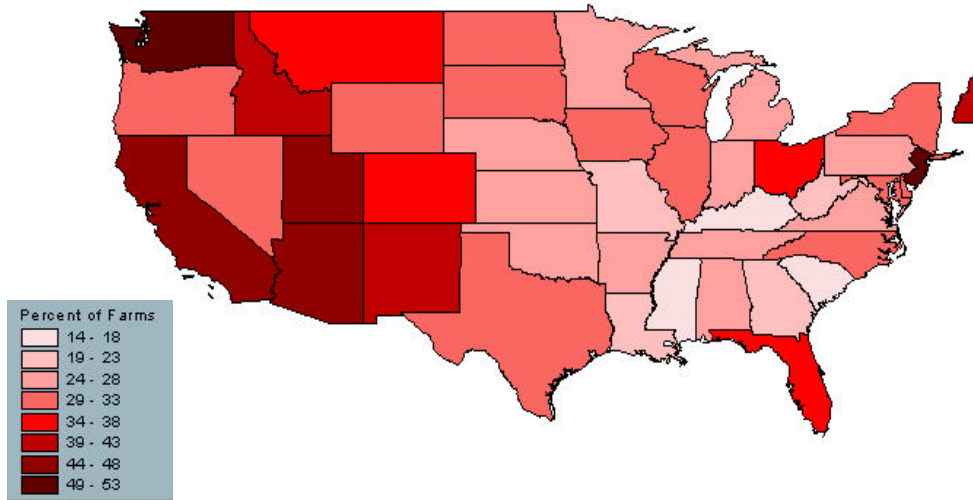


Exhibit 9. Growers' (with Access) Usage of the Internet

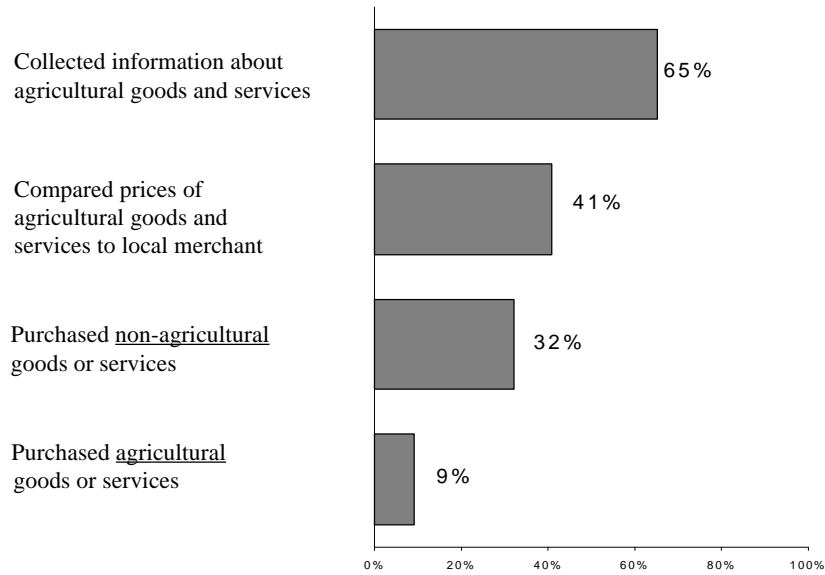


Exhibit 10. Types of Product Information Sought on Internet

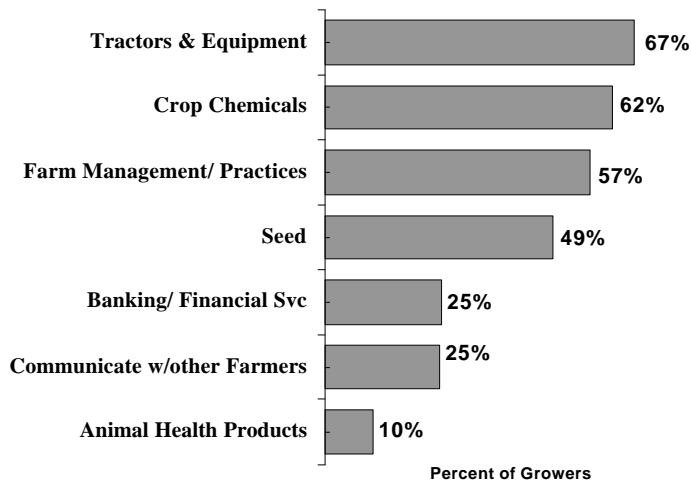


Exhibit 11. Likelihood of Purchasing on the Internet in 2000

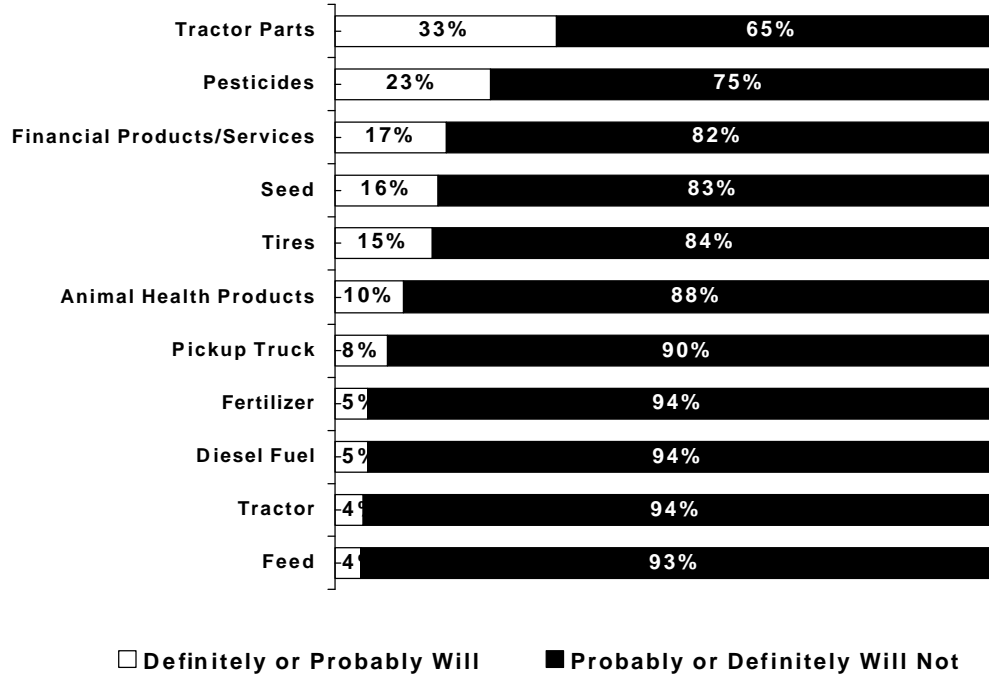


Exhibit 12. Perceived Advantages of Purchasing Ag Products Online

	Total	No Computer	Computer/ No Internet	Computer And Internet
Benefits				
Lower/Competitive prices	40%	19%	36%	53%
Convenience/Saves time/Direct shipments	19%	10%	17%	24%
Better/Wider variety to choose from	7%	6%	15%	5%
Compare prices/products	7%	2%	9%	9%
Eliminate middlemen/salespeople	4%	3%	2%	5%
Product information	4%	1%	6%	5%
No advantages	28%	48%	30%	16%
Don't know	8%	16%	11%	3%

% of total sample

Exhibit 13. Perceived Drawbacks to Purchasing Ag Products Online

Drawbacks	No Computer/Computer Total Computer No Internet And Internet			
	No Computer	Computer	No Internet	And Internet
No one to answer questions/solve problems	39%	31%	41%	43%
No relationship/face-to-face contact	21%	26%	23%	17%
Can't look at product/Questions about quality	16%	10%	17%	19%
Takes away from local business	13%	14%	8%	14%
Concern about online security	11%	3%	9%	16%
Don't know who you are dealing with/Trust	8%	5%	9%	8%
Problems with delivery/Cost of delivery	6%	6%	0%	8%
No drawbacks	3%	7%	3%	1%
Don't know	5%	9%	6%	2%

% of total sample

Exhibit 14. Dealers Use and Adoption of the Internet

