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Agriculture Today and Tomorrow:

The Cooperative Challenge

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AGRICULTURE TODAY AND TOMORROW: THE COOPERATIVE CHALLENGE

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Agricultural cooperatives exist to meet the economic needs of the patrons/members/owners who control them. The cooperative boards of directors have the legal and moral responsibility for guiding future cooperative policy. It is not a job that can be taken lightly. Effective strategic planning requires knowledge of events that are likely to effect your cooperative in the next 2 to 10 years. Such events fall into the following general categories:

• The Markets In Which You Operate

The relevant markets include both those from which you buy and to which you sell. Cooperative management is interested in both the market as it affects the patron/member/owner and the market as it affects the cooperative. Questions arise such as: How many farmers are there likely to be in the future and what will be the sizes of their operations? Will surplus conditions continue to exist? To what extent is price variability to continue as a major issue? Will international or domestic factors be the prime forces affecting the level of price?

• The Macroeconomy In Which You Operate

One of the important lessons of the 1970s and the 1980s has been recognition of the tremendous influence that the macroeconomy has on agriculture. In the 1970s, high inflation rates were a prime motivating force for increases in costs of production and devaluation of the dollar. In the 1980s a reversal of macroeconomic policy resulted in high real interest rates which drove up the value of the dollar and sharply increased the costs of borrowing funds. This put many farmers and cooperatives either out of business or in serious financial difficulty. The high-valued dollar was a contributing factor to low export demand and low commodity prices. Anticipating future macroeconomic conditions may be considerably more difficult than determining the dimensions of your market. Yet cooperative management needs to develop a sense of where the economy is headed and a reaction strategy for alternative economic scenarios.

Government Policies Under Which You will Operate

Farm policies are a concern to most cooperatives because of the impact on their members' incomes, market prices, the quantity of land in production, and commodity stocks. However, policies regarding trade, chemicals or the environment may, in particular instances, be more critical than farm policy. While farmers often complain about instability in farm programs, our basic farm policy framework of target prices and loan rates has remained intact. Significant changes, however, have occurred in the application of program provisions. Thus, the focus should probably be on changes in program provisions rather than on the overall constructs of farm policy. Changes in the general policy framework are more unlikely and difficult to predict.

This publication is designed to aid in the strategic planning process, by examining the external forces likely to shape today's and tomorrow's agriculture. While everyone may not agree with the opinions expressed, they should provide a base for further discussion as to how to position your cooperative in the future. The focus of this publication on external forces does not imply that the authors feel that internal forces such as administration, organization, and various delivery systems should be ignored in strategic planning.

Agriculture Today

Five areas of importance to strategic planning will be discussed in examining the economic status of agriculture today.

- Number and size of farms and agribusiness firms
- International trade dependence
- Excess productive capacity
- Government in Agriculture
- Rural communities

A working knowledge of where agriculture is today in regard to these key areas will provide the background necessary to examine future forces of change and their cooperative impact.

Number and Size of Farms and Agribusiness Firms

As with cooperative numbers, the number of farms has continuously declined from 6.4 million in 1940 to 2.2 million in 1986 (USDA Economic Indicators). Productive capacity, however, has increased while land used for cropland, pastures, range, and forest has remained at approximately 1.7 billion acres throughout the 20th century. A constant land base, coupled with declining farm numbers, implies only one thing: the farms and ranches are getting larger. This simple mathematical conclusion, however, masks the tremendous structural change that has occurred, and continues to occur, in production agriculture. On average, the farms and ranches are getting larger, but what is the distribution? Who controls the production?

Small Scale Agriculture - - In 1976 approximately 81 percent of all farms and ranches had gross incomes of less than \$40,000 (Table 1). These farms accounted for approximately 24 percent of production when measured in terms of gross income. By 1986 this segment represented only 73 percent of the farm population and controlled 11 percent of production.

Farm size	1976		1986	
	Farm numbers	Gross income	Farm numbers	Gross income
(1000 ac)	Percent			
< 40	80.5	24.3	72.9	11.2
40-99.9	13.0	23.2	13.3	14.7
100-249.99	4.3	16.3	9.5	24.0
> 250	2.3	36.2	4.3	50.1

Source: USDA-Economic Indicators of the Farm Sector, Selected Issues

The average small farm cannot provide sufficient economic returns to support a family. Ninety-six percent of total cash household income is generated off the farm (USDA Economic Indicators). This segment of the farm population, however, is very resilient. Part-time farmers who are willing to subsidize their farm business with off-farm income are difficult to put out of business. In the future they may constitute a larger share in terms of farm numbers, but their share of farm production likely will continue to decline.

Medium Scale Agriculture - - For the purpose of this discussion, medium scale agriculture will be defined in two segments: those farms generating between \$40,000-\$99,999 (LM - lower medium) in gross income and those farms generating between \$100,000 and \$249,999 (UM - upper medium). In 1976 LM agriculture represented 13 percent of all farms and controlled 23 percent of production. By 1986 this segment continued to represent 13 percent of the farm population but controlled less than 15 percent of production. Thirty-seven percent of LM's cash household income was generated from off-farm sources in 1986.

Producers in LM agriculture are increasingly pressured by current economic reality. The farm requires too much time for the operator to generate sufficient off-farm income, yet is not large enough to generate sufficient income internally. A decision has to be made. Either reduce size to maintain the quality of life by generating a majority of household income off the farm, expand production to a level less dependent on off-farm income, or quit producing.

In 1976 UM farms represented 4.3 percent of the farm population. By 1986 the percentage had increased to approximately 10 percent. Relative production over the same period increased from 16 to 24 percent. The farms in the UM category generate more than 80 percent of total household income from farm operations. Despite their increased share of production, there is evidence that UM farms cannot realize many of the economies involved in agricultural production and marketing. In competing with larger, more efficient farms they must accept lower returns to labor and management.

Middle size farms were once the backbone of American agriculture. They are becoming a vanishing breed. This is particularly true of the LM farms that require substantial labor, because there is less time to earn off-farm income. Over time, the UM farmers also can be expected to come under increasing pressure to either grow, become smaller part-time farmers, or get out of agriculture.

Large Scale Agriculture - - USDA characterizes large scale operations as those generating more than \$250,000 in gross sales. These farms have increased from 2 percent of the farm population in 1976 to 4 percent in 1986. Large scale operations controlled more than 50 percent of production in 1986, up from 36 percent in 1976. Off-farm income for large scale farms in 1986 accounted for only 5 percent of household income.

The trend is fairly clear. Production capacity is being concentrated increasingly in large scale agriculture. This is the agricultural element that must be served by those agribusinesses that compete to serve commercial agriculture.

Cooperative Implications - - The diversity that is developing in agriculture between part-time farms and large scale commercial operation poses serious questions for today's cooperatives. How do cooperatives best serve this diversity, and can the different segments be served while maintaining traditional practices and principles? The answer is likely "no!"

Traditional cooperative principles were developed in an era when most farmers worked full-time on the farm.

Traditional principles and practices, however, may have to be set aside in order to capitalize on today's and tomorrow's markets. The small farm segment is likely to be less price sensitive when making purchase decisions. Small scale patronage is likely to be attracted by convenience and information. Since small farm operations tend to be less price sensitive and demand a different type of service, a different pricing schedule for this type of business may be required. Such a price schedule could be volume related, recognizing the higher unit cost of serving smaller farms. Since the small farm sector could potentially dominate cooperative control through the "one member, one-vote" practice under current law, membership policy might have to be changed. This could be accomplished either by:

- Increasing membership fees and initial stock investment requirements.
- Changing the Texas law requiring one vote per member to proportional voting.

Proportional voting based on patronage will not jeopardize the cooperative as an institution. It would, in fact, ensure that the cooperative is responding to the needs of commercial agriculture.

Some cooperatives, on the other hand, may purposefully decide to forego commercial operations and focus on smaller-scale producers. If so, they may want to continue the one-member, one-vote practice. Since giving cooperatives the option of proportional voting could be termed a necessary convenience, Texas cooperatives may want to consider it as a legislative issue.

Middle scale agriculture poses a more difficult problem. The sector is in transition. These operators are trying to derive the majority of their household income from the farm, yet economic reality says they cannot. The operator of this size farm likely will be vocal and critical of differential pricing mechanisms or changes in voting requirements. Yet cooperatives must realize that this segment probably will move into either the small or the large scale agricultural class.

Large scale agriculture will have to be serviced if cooperatives are to be a part of the commercial farm sector in the future. What may seem a small nominal price differential on a per unit basis is translated into thousands of dollars for these farms. Can cooperatives maintain these segments and increase their market share? Most likely, but traditional practices will have to change.

Economically warranted differential pricing is a must. Large farms must receive the economic advantages attributable to volume or they will do business elsewhere. Constant margin pricing, rather than equal pricing, will have to become the norm. In this context, equal refers to charging all members the same price for a good or service regardless of the quantities purchased. Constant margin refers to a pricing schedule that reflects cost of doing business. For example, if it costs 5 cents per gallon less to deliver diesel in 2,000 gallon quantities, as compared to 200 gallons, then that producer capable of receiving 2,000 gallon units should have diesel prices at 5 cents per gallon less than producers accepting 200 gallon shipments.

Constant margins can be accomplished in two ways:

- In cases where there are large fixed costs involved in serving a customer, constant margin pricing can be accomplished with a service charge. This has been effectively done by some cooperatives in the pick-up of milk from dairy farms. In the pricing of many functions, it may be possible for the small farmer to avoid the service charge by personally performing the service. Such a policy should be allowed wherever possible.
- Alternatively, different prices can be charged related directly to volume.

In either case, the establishment of a volume pricing system requires careful study both of costs as related to volume and of the anticipated member reaction.

Agribusiness Structure - - In the previous section, it was noted that production agriculture is becoming more concentrated. One of the reasons the cooperative form of business receives special treatment from the government is to offset market power obtained by other segments of the marketing chain i.e., suppliers, buyers, processors, etc. Market power has been empirically related with concentration (Marion). Does the increased concentration in production agriculture imply that cooperatives are no longer warranted? An examination of the structure of the agribusinesses serving agriculture would imply that the answer is NO!

A few examples should support this assertion. The largest four firms controlled 64 percent of commercial beef slaughter in 1987, up from 26 percent in 1972 (Davis). Four firms in 1987 controlled 82 percent of the boxed beef industry. In 1982 the largest four firms controlled 30 percent of dairy products food processing, 54 percent of grain milling, 64 percent of sugar processing and confections, 48 percent of fats and oils processing, 41 percent of cotton weaving mills and 42 percent of cotton finishing plants (U.S. Department of Commerce - Census of Manufacturing).

The input manufacturing industries are equally concentrated. In 1982 four firms controlled 44 percent of ag chemical manufacturing, 66 percent of tires and 54 percent of farm machinery-four firms--<u>not four thousand</u>. Production agriculture is the epitome of atomistic structure when compared to the agribusiness sectors which supply inputs and process and market agricultural production. While concentration does not necessarily imply that these firms will extract excessive profits, the potential is certainly there.

International Trade Dependence

It is important for producers and directors of cooperatives to understand that international trade is critical to the agricultural infrastructure. USDA (World Agricultural Supply and Demand) projects that exports during the 1987/88 marketing year will account for 59 percent of total U.S. utilization in wheat, 46 percent in cotton, 47 percent in rice, 22 percent in corn and 28 percent in sorghum. Because of the proximity to the ports, the export percentage would be even larger for the utilization of Texas crops. The United States agricultural base, therefore, is very dependent on international trade, and knowledge of international trade is critical to effectively guiding our cooperatives in the future.

Excess Productive Capacity

The drought in 1988 may mask, for the short-term, the excess capacity of U.S. agriculture. Given normal weather, U.S. producers of major crops have demonstrated that they usually can out-produce the export and domestic markets. The consequences of excess productive capacity caused a Republican administration, professing "get government out of agriculture," to become more involved in farm policy than any of its predecessors.

The policy implications of excess capacity have become divisive. Producers want to have a sufficiently stabilized income stream generated preferably from the market place. Agribusiness wants customers that can pay, but also maintain volume production. In a saturated market these objectives cannot be satisfied unless the government is willing to subsidize one of the sectors directly. But, when government chooses to directly subsidize agriculture, taxpayers tend to become discontent. Taxpayers, however, are also consumers and from the standpoint of cheap food they get a return on their investment. Given the divergent expectations of the electorate, it should not be surprising that



% of potential output



Percentages calculated as 7-year moving averages. Major crops include wheat, feed grains, soybeans and cotton. Excess production capacity is the difference between potential output and commercial demand at prevailing farm prices.

Source: USDA 1988 Agricultural Chartbook

government farm policy seems inconsistent in many respects.

USDA estimates that in 1986 excess production for all crops was 9 percent while excess capacity in the major supported crops exceeded 20 percent (Figure 1). Cotton provides the most recent example of the dilemma facing U.S. farm policy makers when trying to satisfy the diverse interests of their constituents. The total (domestic and export) market for cotton averaged approximately 12.3 million bales annually over the last 5 marketing years. If all cotton acreage, with a current base, were allowed to fully produce, more than 15 million bales could easily be produced. There is little doubt, therefore, that excess capacity exists under the current policy and economic environment for cotton.

During the 1985 marketing year the carryover-to-use ratio for cotton exceeded 100 percent (Figure 2). During 1986 a 25 percent set-aside program was initiated as well as a marketing loan. The carryover-to-use ratio substantially improved as exports expanded. The initial objectives, therefore, seemed consistent with policy objectives of lowering stocks while remaining competitive in the export

Figure 2. Carryover to use ratios for wheat, sorghum, corn, cotton and rice



Source: U.S. Supply/Demand Estimates, 2/10/89.

market. A similar program was implemented for 1987, but a record yield resulted in a 15 percent increase in carryover stocks as a 23 percent increase in cotton prices began to choke off demand.

Agribusiness entered the picture in 1988 suggesting that rising cotton prices were sending the wrong message to foreign consumers and competitors. They argued successfully for a reduction in the set-aside from 25 percent to 12 1/2 percent. Production responded accordingly and it is currently projected that carryover stocks will increase another 59 percent to 9.2 million bales by the end of the 1988/89 market year. Prices have declined and a 25 percent set-aside has been announced for the 1989 crop. Producers and agribusiness are on a roller coaster that is likely to continue in those sectors with significant excess capacity and heavy government involvement. The primary means of stabilizing producer income is through relatively large government payments.

Government Involvement In Agriculture

In the previous section it was asserted that significant government involvement has and will continue in those crops with excess capacity. This government involvement manifests itself directly in supply management strategies and income supports, including direct payments and Commodity Credit Corporation (CCC) loans.

Indirect support accrues to those industries that benefit from government subsidized inputs or import quotas. In the fed-beef industry, for example, government involvement seems small. Yet when one considers the benefits gleaned from a cheap feed grains policy and from beef import quotas, this sector, too, is heavily dependent on government actions. Sugar and dairy products are other commodities for which import quotas and government price supports have a significant effect on producer income. It is hard to imagine any segment of agricultural production in which government (U.S. or foreign) does not play a significant role, either directly or indirectly.

The Reagan administration's philosophical stance was to get government out of agriculture. Economic circumstance and political power clusters did not allow this philosophical stance to be made policy. The political reality is heavy government involvement. A few statistics from the crops sector will substantiate this statement.

Figure 3 charts the planted cropland acreage in the U.S. from 1970 to 1987 including the acreage idled under the various government set-aside programs. The graph dramatically depicts government participation since 1981. A record 78 million acres were idled in 1983 under the PIK program and 69 million acres were idled in 1987 under the

Figure 3. U.S. crop acreage planted and placed in conserving uses.

Million acres



Source: USDA 1988 Agricultural Chartbook

commodity set-aside programs and the Conservation Reserve Program (CRP). Currently over 28 million acres have been enrolled in the CRP program designed to remove highly erosive cropland from production for 10 years. The government target is 40-45 million acres by 1991, with many arguing that this target should be expanded to cropland posing water quality problems.

Since participation in supply management and income support programs have been voluntary, government has had to offer incentives to attract participation in the various programs. CCC outlays, therefore, expanded rapidly from approximately \$2.8 billion in 1980 to a record \$25.8 billion by 1986. CCC outlays dropped slightly in 1987 to \$22.4 billion, and fell to approximately \$13.1 billion in 1988 (USDA-Ag Outlook and Congressional Budget Office).

Expenditures of this magnitude pose a number of problems.

- As the Administration and Congress struggle to control the U.S. deficit and meet targets under Gramm-Rudman-Hollings, agricultural spending is not exempt from the budget cutting axe. The Bush administration has proposed continuation of the annual decline in target prices enacted in the 1985 farm bill.
- If instead of entitlement based programs, as currently exist, the agricultural budget was fixed at a specific level, even more infighting could result among agricultural commodity and agribusiness groups. In 1987 the feed grains program accounted for 62 percent of CCC outlays followed by wheat at 13 percent. A fixed budget would almost certainly mean commodity groups fighting among themselves for a larger share or resorting to policy tools that do not appear as frequently on budget balance sheets-import protection immediately comes to mind.

Government involvement in agriculture is significant and policy changes can rapidly distort economic expectations. It is extremely important for both operational and strategic planning that cooperative leadership be informed about both current and potential government policy moves as well as their differential impact on the cooperatives and its member owners. Just as important as farm policy are tax, environment, health, monetary/fiscal and labor policies at both the federal and state levels. Time does not permit expansion into these areas but they, too, cannot be ignored by cooperative management.

Rural Communities

Improvements in production, information and transportation technologies have shifted efficiency, input and marketing advantages in the direction of larger farms. The result is a progressive trend toward fewer but larger farms, small populations in truly rural areas and increased concentration of purchases and marketing in the hands of a relatively small number of large-scale farmers. In the process, rural business activity is becoming more concentrated with smaller communities losing their banks, implement dealers and farm supply firms. As a result, rural business activities are increasingly becoming concentrated in certain rural agribusiness centers.

These dynamics pose a set of very important questions for the cooperatives. How can cooperatives best position themselves to serve their member-owners and meet their economic objectives in a rapidly changing rural environment? Where do cooperatives locate to maximize the advantages which will allow them to compete? Can a cooperative effectively compete if it is not located in an agribusiness center? In short, how should cooperatives adjust to the changing farm and rural community structure? The answers to these very important questions will define the quality and economic viability of cooperative service in the next decade.

At first glance, it is easy to say that the marketing or supply cooperative should be located close to the production. Yet the answer is more complex. Do the larger, more concentrated agricultural producers demand full service from their communities? Do they want to be able to deal with lending, input procurement, marketing, etc. from sources in a single geographic area? Larger scale farms and ranches are more sensitive to price. Are the more competitive attributes of agribusiness centers more conducive to attracting the purchase of supplies and marketing of commodities?

Boards of directors are well aware that the single most important decision they make is the selection of a manager, who will in turn select the employees. Change in agriculture indicates increased complexity in decision-making and greater value in assimilating and interpreting information. The cooperative that survives in the future will have to attract and retain well-trained managers and employees. Quality of life will be a big factor in attracting this quality of manager and employee. The community may have to provide employment opportunities for highly trained husband and wife teams. Will the attributes of agribusiness centers attract the better employees vis-a-vis the smaller rural communities? The answer is likely yes.

Agriculture Tomorrow

The previous discussion focused on the economic status of agriculture as it exists today and the implications for cooperatives. It is often said that there are two certainties in life--death and taxes. Perhaps a third should be added--change. Economists are hard to pin down on a specific forecast, but it is safe to predict that conditions that exist today will certainly change in the future and probably at an accelerating rate. Cooperative leaders must examine the potential forces of change and incorporate them into their cooperative's strategic plan.

The forces of change are many, but this discussion focuses on the following major areas:

- Economics of production
- Technological change
- Internationalization of agriculture

• Government involvement

Economics of Production

Will production agriculture continue the trend toward increased concentration in the hands of fewer large scale producers? The evidence in recent years indicates that there are substantial economies of size in production agriculture. Due to a number of technical, time and volume related factors, larger scale agriculture is able to produce at a lower per unit cost than its smaller scale counterparts.

A recent study by the Agricultural and Food Policy Center at Texas A&M charts these size/cost relationships for Texas cotton, wheat and sorghum (Figure 4). Significant economies of size were exhibited across the entire spectrum of farm sizes studied.

In the presence of such economies it is unlikely that the trend toward a relatively small number of large farms controlling the vast majority of production will be aborted in the near term. Government intervention probably could not to reverse this economically driven trend even if it wanted to.





Technological Change

Commercial agriculture has entered the third stage of a technological revolution that began in the early 1900s. We are all aware of the significant gains in productivity accompanying the switch from horse to mechanical power in the 1920s to 1940s. The second technological revolution occurred with significant breakthroughs in hybrid breeding, irrigation and the development and use of chemicals in the 1950s to 1970s. As significant as these past technological revolutions were, they may be modest compared to the biotechnology and information technology revolution that is currently occurring.

A paper titled *Implications of Biotechnology for Agricultural and Food Policy*, published by the Agricultural and Food Policy Center at Texas A&M University, notes:

Biotechnology fosters larger farms, more integrated farms, mergers, acquisitions, and consolidations of firms within agriculture. The moderate-size family farms, the image of American agriculture, are seriously jeopardized by biotechnology trends. Steps taken to preserve this institution, perhaps, will be the major policy issue facing agriculture over the next decade. Some argue that it is already too late. Others suggest that while every farm bill was enacted with the goal of preserving moderatesized family farms, this effect has never been realized. Yet Texas A&M research indicates that the moderatesize farm would be the most adversely affected by an elimination of current farm subsidies.

The Office of Technology Assessment, a research arm of Congress, devotes an entire study to evaluating what can be done to maintain the traditional decentralized family farm structure in the age of biotechnology. Their basic conclusion is that to achieve this objective, virtually all government programs would have to be constructed to favor or allocate a large share of the program benefits to operators of moderate-size farms. In the process, these benefits would be denied to larger, more efficient farm operations. Making such a policy decision will be very difficult because, in part, it would virtually eliminate the supply control aspects of current farm programs. Realistically, operators of large farms hold the balance of the political power in agriculture.

Biotechnological breakthroughs most likely will make management more complex for farmers and cooperative employees. The need for information assimilation and processing will accelerate. Computer information technologies will be at the forefront of managerial decision making. As commercial agriculture depends more and more on computer applications, so will the businesses that serve them.

Cooperatives buying and selling commodities are currently using computers to process daily position statements and using a variety of hedging tools to transfer price risk. Access to on-screen trading systems for financial futures are just around the corner. The Chicago Mercantile Exchange is expected to initiate on screen trading of financial futures by mid-1989. If successful, the technology will probably be quickly adapted for the commodities. Around the clock trading will improve the marketing capabilities of current merchandisers the world over.

Expert systems which help producers diagnose problems and prescribe remedies will become commonplace. The agricultural cooperative of the future probably will provide at least a minimum level of access to such systems both for its managers and as a marketing tool or service to its patrons/members.

Internationalization of Agriculture

Rapidly expanding information technologies have certainly contributed to the development of a world economy. Orders can be placed, resources directed and monies transferred in a very short time span anywhere in the world. Information is the key to a global marketplace and those who obtain the information first will benefit the most.

If the current agricultural infrastructure is to continue, U.S. agriculture will be increasingly dependent on the world market. Cooperatives have not been successful in penetrating and holding the bulk commodity markets. Some have been extremely successful in developing a limited but profitable market niche. Regardless of the method (i.e., joint ventures, regional contracts, etc.) cooperatives must find a way to access the export markets.

Government Involvement In the Future

The U.S. position in the GATT negotiations is to scale down government involvement in agriculture by the early 21st century. While this is a laudable goal in theory, it is not that easy in practice -- a fact that is made particularly clear by examining government involvement in the last 8 years. It would be difficult to forecast an agricultural economy without government involvement regardless of the type of world political structure.

What then can we likely expect in the future? There will be continued government fine tuning of policies for those commodities with excess productive capacity and international trade dependence. In the near future, budget considerations will have the major influence on this fine tuning process. The government roller coaster ride probably will continue.

Implications For Cooperatives

Change is the key to the future. The successful cooperative will have to maintain flexibility. It must be able to adapt to new technologies, trading patterns and government policies. The successful cooperative will need to:

- Be involved in the policy making process,
- Define its role in the international export market,
- Refine its principles and practices to serve an agricultural structure dominated by fewer large scale producers,
- Refine its posture relative to investor owned agribusinesses that continue to consolidate and gain market power, and
- Remain technologically up-to-date.

Accomplishing these objectives will be a significant challenge for cooperative leadership – a challenge effective cooperative management will have to accept.

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