

Proteins and international agriculture

The following was the featured talk of the Protein and Co-Products Section of AOCS at the 1987 meeting in New Orleans. Guest speaker was David H. Swanson, president of Central Soya Co.

At the risk of beginning on too basic a premise, let's remember that agriculture is "something special" because food is "something special." Food is necessary for life. Wars have been fought and won or lost over the availability of food. Civilizations have disappeared for lack of it. Governments have crumbled because food was short, or too expensive. Food is the most basic of needs since, after all, self-preservation is the first law of nature, both for people and governments. Here in the U.S., 17.5% of our gross national product is from agriculture and related industry. Employment in these businesses amounts to 18.5% of total U.S. employment.

That tenet—that food is something special—has been the driving force behind what I believe is well-meaning, but misguided, agricultural policy in most of the world's developed countries. But that very same tenet, I also think, will present some of the truly exciting opportunities in agribusiness in the next decade for those smart enough to avail themselves of that opportunity.

Let's look for a moment, though, at the more sobering realities that must be dealt with—obstacles that have evolved because food is something special. Nations have for centuries recognized the need to be self-sufficient in their food production. At one time this was legitimate policy, to be sure, but advances in technology coupled with this deeply ingrained mind-set have brought about tremendous overcapacity in world agriculture. In the U.S., one farmer today can feed more than seven times the number of mouths that a single producer could accommodate prior to World War II, yet U.S. farm policy is still rooted in Franklin Roosevelt's New Deal. Today we have more efficient hybrids, fertilizers, pesticides and machinery, and we pay a lot of money to our farmers to produce

more food than we can use. It's not working in today's increasingly complex and internationalized agricultural marketplace.

The U.S., of course, is only one of many nations that gather enormous harvests, and we're all in the throes of a rather brutal readjustment period. This problem of overcapacity in the U.S. is compounded by more than just subsidies and trade barriers here and abroad. Factor in some expensive foreign debt, an embargo or two, interest rates, our own national debt, the balance of trade and the fluctuating value of the dollar, to name just a few influences, and you have a scenario for which there are no easy solutions or pat answers. One couldn't possibly cover all of this in one talk, but I will touch on a few points and hope to shed some light, or at least stimulate discussion, on part of the issue.

It's clear, I believe, that recovery of U.S. agriculture depends upon regaining our export markets, which have dwindled over recent years. Our farmers grow more grains, soybeans, cotton and other goods than we can ever consume, and roughly a third of their production has to be peddled overseas. The trouble is that our products have become overpriced in world markets. Our prices have begun to come somewhat more in line with world markets with the weakening of the U.S. dollar, but that, in and of itself, won't do the trick. Our 1985 farm bill set a loan program on soybeans that practically guaranteed that there would be very little, if any, export of soybeans or soybean products, because our prices were simply not competitive. U.S. government loan programs had kept the cost of soybeans, one of the major raw materials in agribusiness, artificially high in relation to the worldwide prices we can receive for finished product—soybean meal and oil. Recent run-ups in the price of beans have provided some relief in this area, but the price of beans at



David H. Swanson

the time legislation was drafted seemed to be ignored. And the programs still have the potential to contribute to the oversupply problem by encouraging production regardless of market demand.

Our high supports tend to allow the problem to feed upon itself. It's so easy for other countries to undercut U.S. export prices that they are encouraged to step up their own plantings. Canada, Australia, Argentina, Brazil, Thailand, France and Italy are all competitors made stronger by U.S. farm policy. Even China and India are now exporting grain.

Having gained footholds—and in some cases, a dominant position—in world grain markets, you may be sure that our foreign competitors won't be giving them up easily.

Every country knows the importance of making its agriculture prosper. Every country's leaders and politicians know that its family farmers must prosper. This is a never-ending quest. They get votes, and the concept of self-sufficiency in agriculture is held near and dear to their hearts. The European Economic Community (EEC) has worked hard to protect the agrarian interests of its member-nations—encouraging bigger farm output, even when gains were not efficient, with the goal of broadening its farm production base. It has become very expensive to their taxpayers, just as it has to U.S. taxpayers, to do this.

But the EEC has deep pockets, and it will be difficult to convince those countries to abandon the investments they made in agriculture back when U.S. food was pricey. Countries such as Argentina and Brazil, desperate to get foreign exchange to service their enormous debt, must plant every field in sight and export at any cost.

We are competing against formidable forces, and they aren't by any means all of the challenges to be met in agribusiness. No assessment of the world grain trade and U.S. export markets would be complete without reference to the Soviet grain embargo of 1980, which effectively reduced the U.S. to being the supplier of last resort for the substantial Russian imports that occur year in and year out.

You might imagine the horror with which I and my colleagues in agribusiness greeted the Carter grain embargo. Not only did we immediately lose a great deal of business (the U.S. economy lost an estimated \$11.4 billion), but, more importantly, we established—or, in some minds, confirmed—the unreliability of the U.S. as a grain supplier. This is serious business, because, as I said earlier, food is something special. Because of our retaliation for the Afghanistan invasion, the U.S. was suddenly without a major market. The Soviets and other Eastern Europeans couldn't really be blamed for viewing the U.S. as a country that will use grain as a political

tool. America is burdened with a tarnished reputation as a dependable trader, and to this day, the Soviet position is generally that the U.S. is to be used as a source of grain only if it is the only guy who has anything in the barn. We did recently hear encouraging news of Soviet interest in U.S. wheat, but it's been a long time in coming.

As you might guess from my observations about policy, subsidies and embargoes, I hold the conviction that the faster we can get governments of all countries out of the grain business, the better off we will be in our battle to win back markets. The U.S. can bring many strengths to a free-market contest for export markets, but at the moment, government programs stimulate overproduction, creating surpluses that lay heavy in the hands of government. Government in effect becomes the customer of the farmer and reduces the role of the market price in adjusting supply to demand. Loan and target prices become an umbrella over production increases in other countries. We must say "enough is enough," and steer agriculture toward more of a free market environment.

What can we do? For one thing, we need to slash price supports so that our crops won't be so expensive. Let the forces of supply and demand go to work. One way to help the American farmer avoid a bloodbath and still

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keep commodity prices down would be to "decouple," as the buzzword goes. This proposal would separate income support for farmers from price support. In this way, the farmer wouldn't be forced to plant fence-to-fence just to receive more government support. By eliminating price supports, farmers could produce what they want and sell it at home and overseas at market rates. At the same time, the government should establish a straight-forward "welfare" program for farmers who can't survive that kind of competition. This separates social objectives from economic ones, or benefits from production, and is one of the ways we can help extricate ourselves from this difficult situation. While many farmers consider the prospect of welfare repugnant, there's really no reason to pay them for working harder and producing more food that no one can eat. In fiscal 1986, U.S. taxpayers sent rural America more than \$25 billion. Decoupling programs in other countries, of course, would go even further toward a solution.

One arena in which we could accelerate such negotiations is the General Agreement on Tariffs and Trade (GATT), an international forum for negotiating trade issues. There's no need to restrict ourselves to this forum, but it's a start.

Continued reduction of price supports, continued downward pressure on the dollar, cheap credit to buyers and lots of negotiations to help end trade barriers and subsidies in other countries will help bring our export markets back in line.

And they *will* come back. But I would caution against expectations of great and immediate change. There will be gains, but I'm not sure there ever will be a return to the boom years of the late 1970s, which may have been an aberration. In the meantime, foreign competitors have become accustomed to a bigger piece of the pie, and they will fight hard to keep it. Some countries, for example, have legitimate comparative advantages that we will be hard-pressed to overcome. In South America, for example, they have in many cases become the low-cost supplier because they can practically just throw the seed on their very fertile ground, forget about fertilizer and produce a good crop.

The idea that food is something special dominates policy in every nation. It prevails to such a point that, for instance, the United Kingdom is willing to tax its citizenry and pay a subsidy to its farmers to grow barley and wheat, so much that they export it. Underneath this is a disturbing mentality: "We don't trust our long-time allies, the U.S. and Canada, to supply us with these grains. We must be self-sufficient."

All this notwithstanding, I believe that the state of U.S. agriculture and its profitability will improve. We may not dominate the grain trade, but we will always be a major player. We have excellent climate and soil, generally well-managed farms and a river system that looks as though it were designed to transport grain. Beyond that, we have heavy investments in railway cars, barges, grain elevators and ports.

Improvements will come, in part, through gradually increased exports of our commodities and by shifting some resources out of farming. We are, after all, seven

times more productive than we were at the end of World War II. Finally, improvements will come through a continued emphasis on *value-added* exports, as opposed to simple commodities.

I believe it is this last point—the value-added exports—that we who have staked a claim at various points along the food chain can get really excited about.

As oil chemists and related professionals, you can certainly appreciate that exports don't have to be just raw commodities. Thinking again about comparative advantages, we can see that value-added products are a natural. Yes, South America may have millions of acres of low-cost fertile land, but the U.S. has an edge in the higher end of the technology spectrum in converting raw beans into high grade, further processed soy proteins. And yes, the Common Market may have expanded its agricultural base considerably, but it still looks to us for much of its lecithin and other value-added products, because here, too, we are extremely competitive. This is a business in which prices are much more market-driven than most commodities we deal in.

Conceptually, value-added business makes sense in any environment, but the current world of agribusiness is perfect for the inroads that U.S. technology and marketing know-how can offer.

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While U.S. farm production has been growing much faster than its markets in recent years, the same cannot be said of the further processed, value-added products that come from farm commodities. On this field, markets are growing faster than our production capacity. The player with the best technology is the favorite, and at this stage, that player is the U.S.

In most instances, high tech means lower cost. Those with the best technology almost always wind up with the lowest production costs. And least-cost producers, I believe, will get most of the business.

A little history dramatizes the value of high tech to agriculture. In the 1930s, crop yields were about equal worldwide. Differences among the U.S., England, India and Argentina were not really perceptible. But over the next 50 years, U.S. productivity soared. Corn yields quintupled, on average. Milk production per cow has at least doubled. Overall farm productivity skyrocketed, and this, more than anything else, helped U.S. exports to surge, leaping ahead of other exporting nations in the decades of the 1960s and 1970s. In more recent years, the competition has caught up. Although there were many reasons for this, the competition couldn't have caught up under any circumstances had they not spent more on technology.

I believe we're in the early part of a technological revolution that will make possible new and better products and new markets for existing product bases. A good example of this is ethanol, the use of grain alcohol as an octane enhancer. This offers something for everybody—for one thing, a promising new market for corn producers, thus adding stability to domestic markets in a tough business. And while it may not be the huge untapped source of energy you heard about in the rah-rah days of the 1970s, it is a new market for millions of bushels of corn each year.

An even more dramatic example is corn sweeteners. The U.S. processes 10 billion pounds per year to use as a sugar substitute, reducing the reliance on an imported and volatile sugar commodity.

In Central Soya's soy protein and lecithin business, we're placing a lot

of emphasis on research, product development and marketing activity, particularly overseas, to create inroads into new business. It makes sense, of course, for more reasons than just greater sales volume. For one, the margins are greater. As value is added to a commodity, the margin between the cost of goods and selling price generally increases. For another, one gets added stability in agricultural markets that can be brutally volatile. And there are social benefits as well. Value-added almost always means more jobs and more personal income, which translates into quality-of-life benefits that are intangible but very real. We must remember that it is only through economic growth that we create jobs and boost our standard of living. Some examples might help illustrate the benefits of value-added business:

Take a flour-for-wheat comparison. Export one million dollars worth of wheat, the raw product, and \$5.42 million of business is typically generated in activity such as transporting the product and refining the fuel it takes to move it. But that same million dollars of wheat, processed into flour and exported, will generate \$14.26 million in business activity such as making the machinery to process the product, the sacks to hold it and the railroad cars to transport it. That's almost three times as much money going into the economy. And while it takes 143 employees to handle the wheat activity, it takes 335 workers when the wheat is value-added into flour, and personal income is more than doubled. In this example, when value is added to the wheat, personal income increases from \$1.54 million to \$3.45 million. That's an increase of almost \$2 million in salaries.

Similarly, when the U.S. exports corn-fed poultry instead of just sending corn overseas, when we send meal instead of beans, when we send cottonseed mill products instead of just the cottonseed, we gain the greater economic benefits that value-added business offers. If we simply export raw materials, we also export jobs, personal income, corporate output and federal tax revenues. In this respect, we have lost ground to the EEC and others, and we must place renewed em-

phasis on exporting value-added products. According to the Export Processing Industry Coalition, if we tabulate all the product we are prohibited from selling overseas due to trade barriers, subsidies, tariffs, import quotas, etc., annual losses amount to \$31 billion in gross output, 438,000 jobs and tax benefits to the treasury of more than \$2.1 billion.

Emphasis on the export of value-added products would be well-placed, not only on existing products, but on those yet to be brought to market. Additional research will bring more benefits as new products are developed. As scientists, most of you also are aware of other plants with additional products and new markets: for example, crambe for the production of lubricating oil, and euphorbia, dubbed by some as "the gasoline plant." Some scientists suggest the latter could yield 40 to 50 barrels of oil per acre per year with proper cultivation and gene manipulation. Jojoba is another plant with promise, producing a wax similar to the oil from sperm whales. Meadowfoam is another potential source of oil for various industrial uses. Other new product possibilities, particularly in the area of biotechnology, are almost breathtaking. What if, for example, nitrogen-giving genes like those of soybeans could be introduced into corn? That would reduce by billions of dollars the sums now spent on chemical fertilizers.

In the area of soy proteins, we've created a product that gives value to carcass parts that had none before. Mix this soy protein with chicken viscera and you have a nutritious pet food, where once you had only meat scraps of limited worth.

But it's for human consumption that even greater value-added benefits can be found—upgrading meal into edible soybean meal and flour, and even further into textured soy flour, and further yet, to soy protein concentrates, for which the world market is considerably larger than the U.S. market. Similarly, lecithin, derived from soybean oil, can be upgraded to several different levels, bringing as much as a 660% increase in value compared to crude lecithin. Uses ranging from nutritional to emulsifying in the manufacture of

magnetic media make this a product with an exciting future.

It won't be a matter of simply making the product available, however. There's more to be learned about both the products and their markets. I believe industry will be looking to you as scientists to tell us more about the value of products, their applications and how their value can be enhanced. How, for instance, might the shelf life of soybean oil be increased? We could know a lot more about the nutritional value of soybean oil, edible meal, edible soy protein products and lecithin, and a dozen other products. Consumers need to be educated on how to better use products such as oil, protein and lecithin. More work is needed to correct the image of soy foods as just cheap fillers in meats.

Perhaps more importantly, we all need to do a better job of studying our foreign markets, making sure that we are "close to the customer." We cannot push onto the Japanese market something that was created for the Illinois market. I believe that

U.S. companies have not done a spectacular job of researching individual markets and their corresponding needs around the world. At my own company, we are putting a much stronger emphasis in this area.

In some cases, a country may simply need the technology to make its own product. At Central Soya, we have entered into several joint technology agreements, because we have the know-how, and it is inevitable that the technology will be available to off-shore manufacturers—if not from us, then from someone else. There will be situations where, if income is going to be generated from a country, it will come from technical royalties rather than an ocean freighter loaded with product.

In the last two years, we at Central Soya have placed a great deal of emphasis on developing markets for our lecithin and soy concentrates, which have not been particularly well known around the world. We have also emphasized marketing the technology we've developed. It's been a concentrated and very determined effort to create new markets,

and we're delighted with what's been happening. We feel that as long as we can stay ahead of the curve on technology and we pay attention to what customers really want and need, this can be a very lucrative part of our business for decades to come. While the economies of some of our biggest potential customers today won't permit much in the way of imports, I believe that over time the economies of developing nations will perk up. We may have to reschedule debts—perhaps even forgive some—but there will be enough growth to improve living standards in areas like Africa, the Middle East, Southeast Asia and, of course, China. The opportunity is ours, but it will challenge both our technological and our business skills. World population is conservatively estimated to increase by 75 million per year—the equivalent of adding about 1.75 times the current U.S. population in five years. It will take large amounts of protein to feed these people. Food is something special and that makes our business one of very special opportunity.

From Washington

NRA suggests consumer info

The National Restaurant Association (NRA) has drawn up guidelines for the food-service industry concerning ingredient and nutrition information.

Noting that it remains opposed to mandatory labeling, NRA suggested information could be provided to consumers about such ingredients as milk/milk products, eggs, fish/shellfish, tree nuts, peanuts, soybeans, monosodium glutamate, sulfiting agents and FD&C Yellows 5 and 6.

Nutrition information might include calories; fat—both total grams and percent of calories from fat, unsaturated fat and saturated fat; cholesterol; and sodium.

Quick-service operations might find it most effective to provide such information in brochures, pamphlets or typed materials made available to

anyone who requests it, NRA said. Table-service restaurants could print an invitation to consumers to ask about ingredient content and could highlight menu items lower in calories, fat, cholesterol and sodium, NRA added.

However, NRA cautioned against using health claims, such as "Our fish sandwich, rich in omega-3 fatty acids, will reduce cholesterol and help prevent heart disease." Details: *Food Chemical News*, May 4, 1987, pp. 15-16.

Meanwhile, Fredrick J. Stare, Harvard University nutritionist, has recommended that the U.S. Food and Drug Administration (FDA) discontinue what he called "too complex" nutrition labeling and limit proposed cholesterol labeling to "no cholesterol" or "cholesterol free" declarations on qualifying foods.

Calling current complicated nutritional labeling "a waste of time and money," Stare said food labeling should be limited "to the number of

calories for a standard serving and a statement that a particular food is a 'good' source of nutrients x, y and z." He said labeling foods as "low cholesterol" and "reduced cholesterol" is meaningless unless the amount of food consumed is taken into consideration. Details: *Food Chemical News*, May 4, 1987, pp. 30-32.

Improving tests for cholesterol

The College of American Pathologists (CAP) and the U.S. Commerce Department's National Bureau of Standards (NBS) have established a "reference laboratory" program that aims to improve clinical measurements of blood serum cholesterol levels and drugs of abuse in urine.

According to organizers, one area of concern is the accuracy of cholesterol tests in clinical laboratories.