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# Markets, Contracts, and Integration as Methods to Link Farm Production with Food Processing

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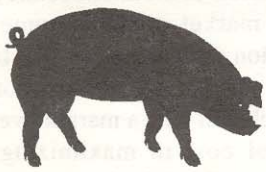
Our food system is composed of highly interdependent levels. Production of basic farm commodities, such as corn, soybeans, wheat, livestock, and poultry, is one critical part. Equally important, however, is the food processing industry which converts these commodities into food products for retail markets. Today, there is growing concern about how product movement between these two levels of the system is coordinated. Grain producers wonder whether specialty crops, with their associated production certification methods, will grow in importance. Hog producers worry about a trend toward contract hog production with ties to processing which may exclude their farm or at least change the ownership structure of farm assets. At the same time, poultry producers pore over the details of their production contracts.



All of these concerns are justified, and therefore it is our intent to help readers better understand potential coordinating mechanisms, to discuss their advantages and problems, and to explore some of the implications for Indiana agriculture.

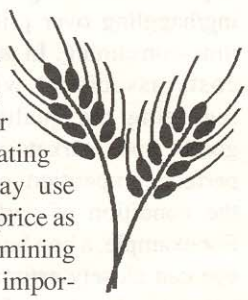
Coordination refers to the process by which successive stages of the production and marketing of a commodity interact in order to deliver products when, where, and in the form that they are most desired. A stage is any of the individual processes occurring in the production-marketing chain that is able to produce a salable product or service (Mighell and Jones). Coordination methods include open market transactions, integration, and contracting in several forms.

## Open Markets

The benchmark by which other coordination methods are compared is an open or cash market between stages in which goods of homogeneous and known quality are offered by a number of small sellers to a number of small buyers. Open markets are possible between every pair of stages in a market economy. Also known as spot markets, present-day examples that approach this definition of an open market include livestock sale barns, local grain elevators, and terminal livestock markets. Buying or selling a product on a spot market is known as an external transaction, because the coordination between the stages occurs outside a single firm's normal operations (Mighell and Jones, 10). Competition among the several buyers and sellers produces a unique price that clears the market. Producers and consumers make adjustments in their output and consumption based on the price signals generated in the market. A purely market coordinated system would have a market between every stage, and no firm's activity would include more than one stage.

Spot markets provide easy access to potential buyers and sellers, and prices are visible to all participants. If an individual has money he can be a buyer; if he has goods available he can be a seller (Schrader, 67). No previous agreements or commitments are required. Typically, this means produce first and then sell. At worst, a seller's receipts will not cover costs, or a buyer will find the goods too expensive, but a market will be available.

Spot markets provide a means of price discovery. Through a bidding process, a market clearing price is established and made public. Knowledge of prices at each accessible market is desirable to allow all participants to compare their market alternatives (Schrader, 67). Also, other market coordinating mechanisms may use the spot market price as a basis for determining payment. It is impor-



tant to recognize that the value of a spot market for price discovery or as a basis for other pricing formulas depends highly on the volume and quality of products going through the particular market in which the prices and quantities are simultaneously negotiated.

***"Only low-cost, efficient producers and processors will remain in business in the long run, which will lead to the lowest possible prices for goods in the grocery store."***

Spot markets provide a method of rewarding buyers and sellers of goods for differences in quality, location, and timing. Ideally, such markets serve to promote efficient allocation of resources through competitive pricing (Schrader, 64-65). Prices will be high enough to obtain the volume of production required to satisfy all who wish to buy at that price, but low enough to entice buyers to purchase all that is available at that price. Only low-cost, efficient producers and processors will remain in business in the long run, which will lead to the lowest possible prices for goods in the grocery store. As the forces of supply and demand bid commodity prices down to the efficient producer's minimum average cost, individuals who for reasons of location, climate, management, and so on, are unable to produce at that price will begin to operate at a loss, and will be forced to cease production and exit the industry.

The primary disadvantage of spot markets is their high transaction costs. For example, it is costly to transport goods to or from a central place where buyers and sellers gather. The negotiating/haggling over prices can be quite time-consuming. In addition, there are costs associated with uncertainty regarding the quality of purchased goods. Spot markets, while resembling perfect competition, often do not meet the condition of perfect information. For example, a hog buyer with a trained eye can closely estimate the yield and cut-out of live hogs, but because value may also depend on the genetics, feed, or production practices used, it may be impossible for open market prices to provide a complete quality signal. The quality message may be difficult to communicate through price alone. Buyers desiring a specific quality may have difficulty in satisfying their needs in a spot market.

The stability of product supply and price is another relevant measure of market performance. Spot markets are good at allocating the supply of products already produced, but because of the biological lag inherent in agricultural production and the emotions of market participants, spot markets often result in cycles in commodity prices and supplies.

## Vertical Integration

Vertical integration and spot markets are at opposite ends of the spectrum of coordination methods. In the vertically integrated case, a firm owns and internalizes the coordination of two or more stages in a commodity system. Generally, vertical integration occurs in response to market characteristics that make it more economical to carry out the transaction within the firm rather than across markets (Martin, 234). Economic advantages of vertical integration may arise from the physical relationship between stages (technology), transaction costs (including risk), or market power.

Technology has encouraged integration of egg production and packing. The capability to connect large production units directly to grading and packing equipment eliminates a product move and reduces product loss. Livestock slaughter and further processing may offer similar economies for meat processors. Modern processing technology, in general, is less tolerant of quantity and quality variation than earlier, less capital-intensive systems.

Transaction costs are also an important stimulant for integration. There are many costs associated with market transactions. Some are easily observed, such as transportation to a central market, brokerage, and yardage. Others are less visible but may be substantial, such as the assurance of adequate supplies, quality assurance, credit checks, and costs of information. A number of risks are inherent in reliance on open markets. Buyers may have to offer prices well over production costs to obtain the quality and quantity needed at a given time. Likewise, sellers may be forced to accept a price well below costs when a market is glutted. These problems are more serious for perishable products than for storable products. The more unique the product, the greater the risk for both buyers and sellers in an open market. Consumers' desires for an increasing diversity of quality controlled foods presented in attractive, convenient-to-use forms impose more exacting specifications on acceptable agricultural raw materials. The more exacting the requirements, the more difficult it is for price alone to carry the appropriate message to producers.

Integration may reduce some types of risk, but it also concentrates all remaining risk in one firm. It also limits the ability of a firm with limited capital to exploit size economics that might be available through specialization at one stage of the system. In addition, a market which is dominated by integrated firms will not, in general, reveal prices for the intermediate goods.

The market power argument for integration is more complex. If both sides of a market are less than competitive, each will take a margin over their marginal cost in maximizing their separate profits. If both operations (one producing and the other using the product) are combined, the profit for the single remaining firm would exceed the sum of their separate profits. In agriculture, the motive for farmers to integrate downstream into processing through cooperatives is often the perception that

other marketing firms are taking larger margins than necessary because of market power. Cooperative purchasing and marketing are forms of vertical integration.

## Contract Coordination

Open markets and vertical integration represent the extreme positions. Contracting spans the continuum from a simple sale of grain for future delivery to arrangements approaching integration into production by food processing firms. Generally speaking, contracting refers to an agreement in which one firm produces goods for another firm, but both maintain separate identities and long-term profit objectives (Mighell & Jones, 24).

Contracts of many types exist in agriculture. They differ by: (1) the share of management, resources, and risk bearing provided by each party involved, and (2) the method of payment and/or profit sharing used.

Contracts fall into three primary categories. The first type is called a **market specification contract**, sometimes referred to as a forward contract. This type of contract is the closest to market coordination. Market specification contracts could in principle be made in an open market for contracts. Some agreements specify the exact price to be paid upon delivery, while others may specify only the delivery conditions with prices based on market quotes at the time of delivery. The price or specific formula for price calculation is guaranteed by the contractor in return for delivery by the producer of a specific quality and quantity of commodity at a predetermined place and time. Forward pricing and basis contracts with elevators for grain are examples of this type of contract. The strictness of the standards agreed upon will vary with the commodity and contractor involved. The contractor provides no physical production inputs in the market specification contract. Basically, contracts provide assurance of a supply or outlet and may involve a shift in price risk.

**Production management contracts** represent a second classification of contracts. Similar to market specification contracts, these contracts call for more direct managerial participation by the contracting firm. Cultural practices and type of inputs to be used often are specified in the contract agreement. For example, popcorn grower contracts may specify the variety of seed to be planted and cultural practices to be followed or avoided. Pricing can be fixed or based on market quotes at the time of delivery with a production management contract. Special corn for processing is often produced under this form of contract.

The third type, **resource-providing contracts**, involves the greatest amount of managerial control by the contractor. In addition to providing the guaranteed price or price formula and strict production guidelines, this contract includes contribution of major production inputs by the contractor. Well-known examples include: (1) broiler contracts in which the contractor provides feed and chicks, and (2) hog contracts in which the contractor provides the breeding stock or feeder pigs and feed. In both examples, the farmer provides the buildings, equipment, utilities, and labor. Payment to the farmer often comes on a per head or per pound basis, with monetary incentives for desired performance such as high feed efficiency and low mortality rates. Resource-providing contracts differ from the first two in that the contractor retains ownership of the commodity.

## Why Contract?

Contracts span the continuum from almost spot markets to almost integration. They can be varied to achieve almost any desired sharing of control or risk to suit the parties involved and the situation. One might ask, if market coordination is not performing well in a given situation, why isn't vertical integration the logical answer.

Financing provides an interesting case. Consider the broiler processor. Hatching, growing, and processing must be closely coordinated to use capacity efficiently and to produce the product valued by the users. The capital required for a processor to produce all the birds needed to supply an efficient processing plant would be very high. Contracting for production lowers the capital required by the processor and at the same time makes capital more available to the contracting grower. The typical contract transfers much of the risk from the grower to the processor. The simple market specification contract to arrange for matching production and slaughter schedules would leave much more of the production and price risk with the producer.

***"Contracting for production lowers the capital required by the processor and at the same time makes capital more available to the contracting grower."***

A further advantage of contract production over integration is that the self-motivated contract producer may be a more efficient worker than a processor employee in the same position. Avoidance of fringe benefits and other employer obligations may also be a significant factor encouraging contracting rather than integration by a processor. Much productive family labor can be used by a contract producer that would be difficult or impossible for a large processor to employ. Both producer and processor may gain financially from a contract arrangement.

A cooperative processing operation that would be classified as a form of vertical integration may also use contracts with member growers. Contractual commitments with members are usually required to coordinate production and processing.

The continued trend in the U.S. towards larger, specialized farms has led to some acceptance of contracting in areas typically characterized by independent production. Specialization tends to increase income variation, and

contracts may help reduce some of the corresponding uncertainty (Schrader, 1165). Farmers have investments in facilities and goods in process and are therefore "long" in the market. The processor also faces market risk. The manufacturer of a branded item is "short" in the market, because the product must be on the shelf when the consumer wants it or else all the resources used in advertising and promotion to create brand image have been wasted. Thus, contracting can reduce risk for both farmer and processor. Contract payments typically reflect the amount of risk involved in the enterprise and how it is shared between the producer and the contractor.

Many contracts rely on spot market prices to establish payments to producers. As the proportion of production under contract (or integration) increases, the volume traded in spot markets diminishes. This impairs the price discovery function of the spot market and renders its use for contract settlement questionable when the proportion under contract dominates. Egg trading is dominated by long-term arrangements between producers and packers and between packers and retailers with prices based on market quotes. With 90% or more of the transfers integrated or contracted, price discovery falls to the very small share for which prices are negotiated daily and the judgement of the market reporters. Pricing of eggs and meat have been the subject of controversy for many years. Even so, few would argue that a spot market for cartoned eggs to retailers would be better.

Similarly, the growth of contracting and integration may limit the access to market for the produce-and-then-sell producer, or access to supplies for the processor not having made prior arrangements. The point of access changes where contracts dominate and the cost of entry may be prohibitive where integration is the norm.

## Issues and Implications

The two issues associated with contracting and integration that generate controversy are the feeling that resource-providing contracts reduce the scope for decision at the producer level and diminish access to markets at the traditional farm level. The latter is closely associated with the problem of price discovery in a thin market.

The vertical structure of commodity systems has changed a great deal and continues to evolve. Fifty years ago, agricultural production and some processing were integrated within the farm. Power was often homegrown as was fuel. Seed was produced where used and pest control was internal. Processing such as milk separation, butter making, and poultry slaughter was done on the farm. Specialization on the farm has created more markets than integration has replaced.

Change in vertical structure is not new. The trend to reducing integration in traditional production has been replaced by recombination of some of the same stages, but at a much larger scale and with a nonfarm firm as the coordinating agent.

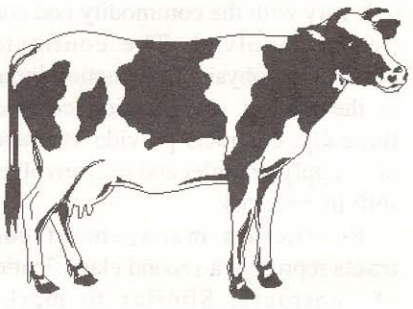
The relevant question for firm planning and for policymakers is the balance of costs and benefits and whether the costs are borne by those who benefit from nonmarket coordination. Some cases are relatively clear. A daily spot market for raw milk would be a high-cost alternative to a stable buyer/seller relationship with fixed routes for assembly. It is equally clear that the transfer of cartoned eggs to retailers benefits from a standing arrangement rather than a daily or even weekly auction. The cost advantage of a closely coordinated system to produce, process, and market poultry is not seriously questioned.

Quality and flow control are central to the issue. Integration or contract coordination achieve control to lower processing costs, provide final products to match consumer preferences, and lower transaction costs. The question is whether these benefits offset diminished accuracy of price discovery and the possibility of exclusion of some who might have entered the system. It must be recognized that all market participants lose from inaccurate prices, not only those who benefit from the integration and contracting.

Quality control is not necessarily achieved to a greater degree with production owned or contracted by a processor. Agricultural production, a biological process, is subject to quality variation. A group of pigs with similar genetics grown in the same facility on the same feed will not all be alike. If the variation under controlled conditions remains larger than that desired by a processor, using the market process to sort for the quality that each processor desires may result in lower cost than internalizing coordination.

The institutions of exchange could be tuned to function more efficiently. The price signal could be more effective in transmitting consumers' desires upstream to producers. For example, the value of soybeans is derived from only two components, oil and protein. Quick tests are available to determine both, yet no beans are bought based on oil or protein content. Furthermore, an allowance for a percentage of foreign material results in worthless material purchase at the soybean price. Computerized trading that could enhance price discovery, lower transaction costs, and accomplish a more thorough sort is feasible but unused. Traditional ways of doing things may increase transaction costs and encourage nonmarket coordination.

Biotechnology holds the promise of agricultural products designed or genetically engineered for specific uses. Methods exist for changing the composition of animals and plants. Interactions between genetics and husbandry or cultural practices are likely to be better understood in the near future. These factors will achieve greater diversity of products and a greater need for quality control. There will be greater



incentives for coordination by means other than spot markets. Closer relationships between agricultural production and processing are likely in the future. The form these take will be influenced by regulation and/or institutional innovation.

Regulation which serves to assure that all costs enter the market decision would enhance the efficiency of the system. Direct regulation of transactions between stages or the stages that may be combined in a firm will most likely result in costs higher than without regulation to the disadvantage of consumers and very likely also for producers.

Regulation of vertical structure in one state or area of a larger market will encourage the affected activities to increase more rapidly elsewhere. A refusal to accept cost-reducing organizational innovation in traditional areas of production will also encourage expansion in new, less inhibited areas.

The challenge for producers in any commodity system is to recognize the common interests of producers and marketers and to find a relationship which allows both to benefit from a cooperative rather than an adversarial relationship.

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# Give Your Farm a Business Performance Checkup

*Don Pershing, Extension Economist*

How do you measure your farm business performance? There is a big difference in income between the top half and the lower half of the 94 Indiana farms that participated in the Comparative Farm Business Summary for 1990. While these farms did not represent all farms in Indiana, the income difference shows variations in production, marketing, and financial performance among farms.

Compared to other farms, some managers did a much better job of doing the right things at the right time. These include:

- selecting the right crops and livestock
- selecting the right machinery and facilities
- using the right kind and amount of seed, fertilizer, and crop chemicals
- carrying out the crop and livestock jobs in the right way

We identify these people as being better managers.

Farm profit was $88,532 for the high-profit group compared to $37,717 for the low-profit group. After figuring a 6% return on their equity, the high-profit group had labor and management earnings of $63,564 compared to $6,086 for the low-profit group. After figuring a labor and management charge, the high-profit group made a 12% return on their total investment compared to 4% for the low profit group. The high-profit group had 26 cents from each dollar of returns to pay interest on borrowed money, reduce debt, and build up investments compared to 13 cents for the low-profit group.

You can use the results to give your farm a business performance checkup. Just as tests for blood pressure and cholesterol indicate your physical health, these analysis factors indicate the "health" of your farm business. You will learn what these factors mean and how to apply them to your farm situation. The 1990 Farm Business Summary, publication EC-658, is available at your local Extension Office. Your local Extension Agricultural Agent can help you learn to use FINAN or FINANX to analyze your farm business.

| | Average | Low Profit | High Profit |
|---|---|---|---|
| Number of Farms | 94 | 47 | 47 |
| Average Farm Investment | $717,427 | $809,675 | $625,179 |
| Average Farm Debt | 33% | 34% | 31% |
| Total Crop Acres | 708 | 739 | 677 |
| % of Crop Acres Owned | 35% | 39% | 31% |
| Estimated Months of Labor, per farm | 27.8 | 26.2 | 29.7 |
| Value of Farm Production | $277,532 | $255,477 | $299,588 |
| Value of Farm Production per person | $119,600 | $117,200 | $120,800 |
| Expense as a % of income | 77% | 80% | 76% |
| Net Profit Margin (Returns as a % of production) | 20% | 13% | 26% |
| Rate Earned on Investment | 8% | 4% | 12% |
| Farm Profit (or Loss) | $63,124 | $37,717 | $88,532 |
| Labor and Management Earnings | $34,825 | $ 6,086 | $63,564 |

# Where Will Indiana Farmers with Physical Disabilities Find Jobs?*

*Ziyou Yu, Graduate Research Assistant and Deborah J. Brown, Associate Professor***

## The Problem

Off-farm income has become increasingly important for U.S. farmers. The 1989 regional farm survey (Lasley and Fellows, 1990) indicated that 38% of operators and 47% of spouses in the North Central region worked off-farm in 1988.

Off-farm jobs are also very important for farmers with physical disabilities. The results of a recent survey of farmers and ranchers with physical disabilities (Breaking New Ground, 1990) showed that 27.6% of the respondents held off-farm jobs, averaging 36.4 hours per week.

Farmers with disabilities are at a disadvantage in finding such off-farm jobs, handicapped by both their physical disability and their rural locations. The Breaking New Ground (BNG) survey showed that 50% of the responding farmers believed that their disability was a major barrier to obtaining off-farm jobs, while 47% believed that a lack of local (generally rural) jobs was a major problem. Regardless of difficulties, many of these farmers did find jobs. The 1990 BNG survey indicated that of the 37% who looked for off-farm jobs, 75% found them. We will briefly describe the survey results and other information that may help Indiana farmers with disabilities find off-farm jobs.

## General Trends in Rural Development

Nationally, the non-metropolitan unemployment rate has remained above the metropolitan rate throughout the

**Table 1. Off-Farm Jobs Held by a Sample of Farmers and Ranchers with Physical Disabilities.[1]**

| Type of Job | Number | Percentage [2] |
|---|---|---|
| Services: | 68 | 59.1 |
| Marketing & Sales Occupations | 28 | 24.4 |
| Sales (real estate) | 5 | |
| Sales (auctioneer, distributor, & other) | 9 | |
| Ag. Seed Dealers | 8 | |
| Ag. Product Sales (livestock, hay) | 3 | |
| Ag. Feed Dealers | 1 | |
| Ag. Equipment Dealers | 2 | |
| Financial Occupations: | 10 | 8.7 |
| Financial Services | 7 | |
| Ag. Banking/Commodity Broker | 3 | |
| Managerial & Management-Related Occupations: | 14 | 12.2 |
| Management (unspecified) | 6 | |
| Ag. Manager | 1 | |
| Foreman/Supervisor/Manager | 7 | |
| Education & Entertainment Occupations: | 8 | 7.0 |
| Teacher | 5 | |
| Writer/Artist | 3 | |
| Entertainment (own nightclub, batting cage, craft business) | 3 | |
| Other Services: | 16 | 13.9 |
| Ag. Custom Work (including baling) | 3 | |
| Ag. Greenhouse/Landscaping/Forestry | 3 | |
| Ag. Trucking | 3 | |
| Electrical Work | 1 | |
| Small Appliance Repair | 3 | |
| Printing Services | 1 | |
| Runs a Salvage Yard | 1 | |
| Communication Operator | 2 | |
| Computers/Data Processing | 4 | |
| Specialty Ag. Products: | 4 | 3.5 |
| Truck Gardening | 2 | |
| Specialty Livestock/Llamas | 2 | |
| Manufacturing: | 14 | 12.2 |
| Maintenance | 4 | |
| Engineer | 2 | |
| Skilled Craftsman (e.g., welder, tool & die worker) | 4 | |
| Assembly Line Worker | 4 | |
| Government Job: | 17 | 14.8 |
| Township (supervisor, treasurer, assessor) | 7 | |
| County (recorder, commissioner, auditor) | 7 | |
| State | 1 | |
| Federal (post office) | 2 | |

*1 Based on data gathered in a national survey conducted by the Breaking New Ground Resource Center in 1990.*

*2 The percentages are calculated based on 115 farmers who have off-farm jobs. Some farmers have more than one off-farm job.*

** We would like to thank Mr. Steve Ziliak of the Indiana Department of Employment and Training Services and Ms. Judy Erickson of the Iowa Department of Employment Services for their great help.*

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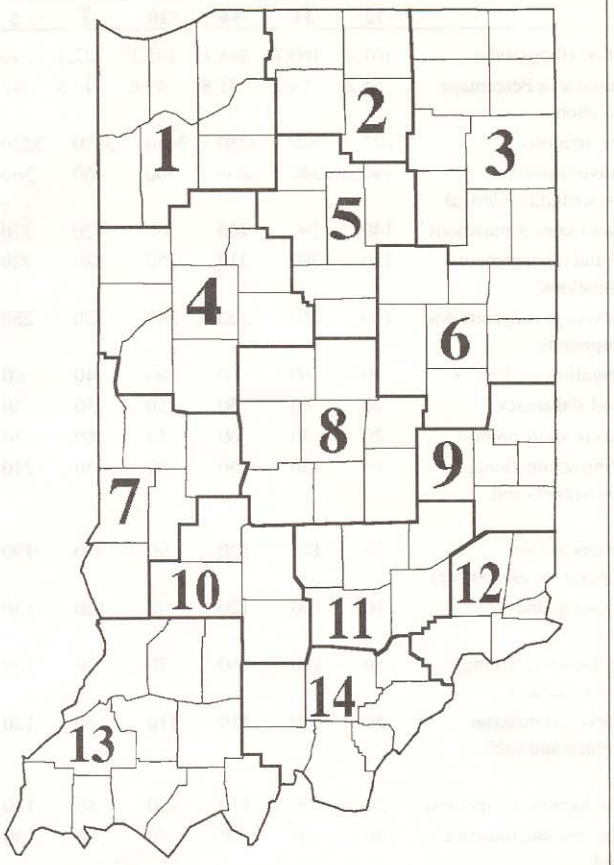
1980s (Brown, et al., 1988). Most new jobs through the year 2000 are expected to occur in service industries (U.S. Department of Commerce, 1991), and most service jobs are concentrated in large metropolitan areas (Miller and Bluestone, 1988). Total agricultural and manufacturing employment, which is a disproportionate share of rural employment, is expected to decline (Kutscher, 1988).

However, nationally there are growth areas even in agriculture and manufacturing, and rural areas do have some service industries. In agriculture, jobs as gardeners, groundskeepers, and farm managers are expected to increase. In manufacturing, jobs in meat production, in the paper industry, and in the wood industry are expected to grow through the year 2000 (Personick, 1986). The construction industries are also projected to need large numbers of employees, particularly carpenters, electricians, painters, paperhangers, and plumbers (Silvestri and Lukasiewicz, 1987). Rural counties do have concentrations of some services, including dealerships and gas stations, hardware stores, real estate services, loan and insurance offices, and agricultural services (Miller and Bluestone, 1988). Jobs in a particular occupation may decline as a whole, but increase in some geographic areas.

**Figure 1. Map of 14 Economic Regions in Indiana**




## Off-Farm Jobs Held by Surveyed Farmers

The Breaking New Ground Resource Center was established in 1979 at Purdue University to provide technical assistance to farmers and ranchers with physical disabilities. In 1990, the Resource Center conducted a survey of employment experiences of farmers/ranchers with physical disabilities. It was distributed to 1,700 farmers nationwide. The surveyed group were farmers with serious physical disabilities who had contact with the BNG program between 1980 and 1990. The disabilities included amputations, severe visual impairments, spinal cord injuries, and multiple disabilities. This was not a random sample of farmers with disabilities, but it is the largest such list available in the country. Four hundred thirty-six farmers responded, a 25.6% return rate.

One hundred fifty-four of the responding farmers had looked for off-farm employment, and 115 of them had off-farm jobs at the time of the survey. Table 1 lists the jobs held by the surveyed farmers. Some reported their occupation; others reported the type of business in which they worked. Nearly a third (26.7%) of the off-farm jobs were in agricultural services, 18.3% were in manufacturing, 43.5% were in non-agricultural services, and 14.8% were in government.

## Indiana Employment Trends

Apart from the experience of the surveyed farmers, there are several employment projections that may be used to help find local employment opportunities. State governments regularly make employment projections for economic sectors such as "Food Manufacturing" and "Retail Food Sales." In Indiana, the Indiana Department of Employment and Training Services (IDETS) (phone 317-232-8550) makes these projections for each of 14 regions (see map).

Employment projections are also made for over 600 occupations for the same 14 regions. Real estate agents and truck drivers are examples of the types of occupations included in these projections. These can also be obtained from IDETS.

One problem in using these projections to obtain information on rural employment opportunities is that the

**Table 2. Projected Annual Average Total Job Needs (Expansion plus Replacement, 1984-1995) for Occupations Expected to Have High Job Needs in Rural Areas by Region.**

| Occupation Title | Region (From Most Rural to Most Urban) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12 | 11 | 14 | 10 | 7 | 5 | 4 | 3 | 2 | 9 | 13 | 6 | 1 | 8 |
| Total Population (thousands) | 101.4 | 160.7 | 248.1 | 187.1 | 222.1 | 240.4 | 270.6 | 530.5 | 477.7 | 150.4 | 435.6 | 480 | 827.7 | 1166.9 |
| Rural Population as a Percentage of Total Population | 55.2 | 54.2 | 51.8 | 49.6 | 47.8 | 47.7 | 47.0 | 46.2 | 43.9 | 43.5 | 39.2 | 34.8 | 21.8 | 18.7 |
| Total, all occupations[3] | 1220 | 2680 | 3280 | 2490 | 3170 | 3230 | 5130 | 12400 | 12350 | 2250 | 8440 | 7500 | 10000 | 34560 |
| Administrative support occupations, including clerical | 140 | 340 | 400 | 300 | 450 | 360 | 680 | 1730 | 1710 | 290 | 1120 | 910 | 1350 | 5710 |
| Marketing and sales occupations[4] | 140 | 290 | 420 | 360 | 420 | 370 | 570 | 1520 | 1500 | 280 | 1280 | 890 | 1410 | 4950 |
| Managerial and management-related occupations | 120 | 280 | 310 | 250 | 320 | 320 | 470 | 1180 | 1240 | 220 | 850 | 700 | 1000 | 3590 |
| Food and beverage preparers and service occupations | 110 | 250 | 320 | 290 | 320 | 280 | 440 | 990 | 1010 | 190 | 740 | 690 | 960 | 2990 |
| Food preparation workers | 30 | 60 | 40 | 80 | 40 | 80 | 110 | 150 | 150 | 50 | 110 | 180 | 140 | 430 |
| Waiters and waitresses | 20 | 40 | 50 | 50 | 50 | 40 | 80 | 180 | 190 | 30 | 130 | 110 | 150 | 590 |
| Cooks, except short-order | 20 | 40 | 60 | 50 | 60 | 50 | 80 | 160 | 160 | 40 | 120 | 120 | 170 | 460 |
| Hand-working occupations, including assemblers and fabricators | 80 | 130 | 150 | 90 | 50 | 210 | 220 | 710 | 720 | 60 | 180 | 440 | 140 | 640 |
| Machine setters, set-up operators, operators, and tenders | 70 | 170 | 120 | 90 | 110 | 190 | 330 | 770 | 840 | 150 | 370 | 460 | 240 | 1320 |
| Health diagnosing and treating occupations | 60 | 100 | 120 | 90 | 120 | 130 | 150 | 400 | 360 | 80 | 330 | 280 | 10 | 1200 |
| Agriculture, forestry, fishing, and related occupations | 50 | 110 | 160 | 70 | 70 | 190 | 240 | 270 | 270 | 90 | 210 | 160 | 310 | 610 |
| Transportation and material moving machine and vehicle operators | 50 | 100 | 110 | 110 | 160 | 120 | 180 | 620 | 470 | 80 | 410 | 260 | 500 | 1510 |
| Precision production occupations | 50 | 100 | 150 | 70 | 60 | 140 | 160 | 470 | 480 | 90 | 230 | 320 | 220 | 830 |
| Helpers, laborers, and material movers, hand[5] | 40 | 80 | 80 | 40 | 80 | 80 | 190 | 410 | 400 | 70 | 250 | 230 | 220 | 910 |
| Truck drivers | 40 | 70 | 130 | 60 | 90 | 90 | 110 | 400 | 300 | 40 | 260 | 160 | 300 | 950 |
| Nursing aides and psychiatric aides | 40 | 50 | 70 | 60 | 80 | 80 | 100 | 210 | 190 | 50 | 190 | 170 | 180 | 590 |
| Mechanics, installers, and repairers | 30 | 110 | 140 | 90 | 110 | 120 | 200 | 560 | 530 | 80 | 400 | 300 | 490 | 1510 |
| Financial records processing occupations[6] | 30 | 70 | 90 | 40 | 90 | 80 | 120 | 320 | 330 | 60 | 230 | 180 | 270 | 960 |
| Registered nurses | 30 | 60 | 60 | 50 | 70 | 70 | 80 | 230 | 180 | 50 | 190 | 160 | 20 | 730 |
| General office clerks | 30 | 50 | 70 | 60 | 80 | 70 | 110 | 300 | 290 | 50 | 190 | 150 | 240 | 930 |
| Personal service occupations | 30 | 40 | 60 | 40 | 70 | 60 | 110 | 190 | 190 | 40 | 140 | 130 | 240 | 510 |
| Protective service occupations | 20 | 60 | 80 | 40 | 80 | 50 | 90 | 260 | 270 | 60 | 210 | 170 | 360 | 1080 |
| Cleaning and building service occupations, except private house | 20 | 40 | 60 | 50 | 70 | 50 | 120 | 230 | 250 | 40 | 150 | 140 | 190 | 830 |
| Vehicle and mobile equipment mechanics and repairers | 20 | 40 | 130 | 30 | 40 | 40 | 70 | 220 | 190 | 30 | 150 | 110 | 180 | 560 |

*Source: The numbers listed in this table are calculated based on unpublished data, "Projections of Occupational Employment for 14 Regions in Indiana", supplied by Mr. Stephen Ziliak, Labor Market Analyst, Indiana Department of Employment and Training Services.*

*3 The represented numbers in this table are rounded to the nearest 10. Thus, 50 can be any number between 50-55.*

*4 Includes cashiers and salespersons, etc.*

*5 Includes hand packers, packagers, and vehicle washers, and equipment cleaners, etc.*

*6 Includes bookkeeping, accounting, and auditing clerks, etc.*

projections are made for a region. A region usually consists of both urban and rural counties, thus job opportunities in the rural counties of each region are unclear. However, one can begin to evaluate rural employment opportunities by looking at jobs which are expected to grow well in the relatively more rural regions of a state.

The most recent IDETS projections for 1984-1995 for 14 Indiana regions were examined and the occupations which were expected to offer the most jobs in the more rural regions were identified. Table 2 shows 21 occupations that were expected to offer a large number of jobs in the more rural regions.

Occupations expected to offer greater employment opportunity in rural Indiana counties for 1984-1995 were administrative support, marketing and sales, managerial and management, food and beverage preparers, and service. Surveyed farmers' responses cannot be categorized in exactly the same way as the occupation projections, because the surveyed farmers sometimes told who they worked for, but not what they did. Given this disparity, compare the occupation projections of Table 2 with the off-farm jobs held by the surveyed farmers shown in Table 1. Most of the surveyed farmers held off-farm jobs in sales (24.4% of the total off-farm employment), government (14.8%), and management or administration (12.2%). Disabled farmers nationally had found jobs in three of the four occupations projected to grow well through 1995 in rural Indiana.

## Conclusions

Most future U.S. jobs are expected to be in non-agricultural services. Most such service jobs are located in urban areas. The surveyed farmers with disabilities who worked off-farm were mostly in service jobs (68 of 115). Their experiences, therefore, mirrored national trends. However, a large number of farmers with disabilities worked in agricultural services, a sector not projected to grow much nationally, but expected to offer a fair number of jobs in more rural Indiana regions.

***"A large number of farmers with disabilities worked in agricultural services, a sector not projected to grow much nationally, but expected to offer a fair number of jobs in more rural Indiana regions."***

It appears that projections of which sectors or occupations will have many job openings can help suggest possibilities to this group of farmers, but judging by the experiences of farmers with disabilities who have jobs in sectors which were not expected to grow between 1984 and 1990, these projections should not be taken as limits.

## Sources of Additional Information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# Government Program Decisions For 1992

*Chris Hurt, Extension Economist; Don Pershing, Extension Economist; Lee Schrader, Professor; and Bob Jones, Professor*

The 1992 government program is the second year under the 1990 Farm Act. Since it is a continuation of the same act, the mechanism of the program is similar, but several key parameters have changed, which may alter some farmers' decisions from last year.

Parameters which have changed from last year include the set-aside levels required for program participants, loan levels, and anticipated new crop prices of corn, soybeans, and wheat. Set-aside levels this year are 5% for both wheat and corn. This is down from 15% for wheat last year and 7.5% for corn. Loan levels are higher this year with wheat set at $2.21 per bushel and corn at $1.72. Target prices are frozen for the duration of the Act at $4.00 per bushel for wheat and $2.75 for corn.

Relative new crop prices are expected to be important in guiding decisions of which crops to plant on flex acres this spring. As of this writing, anticipated new corn prices are higher than they were a year ago, but new crop beans are lower. This implies that farmers will have greater incentives to plant corn rather than beans. New crop wheat prices are sharply higher than last year's, and damage to the winter wheat will likely result in shifting some wheat acres to corn and beans. Relative prices of Indiana's three major crops may vary into spring and alter final planting decisions.

## Best Crop Without Government Payments

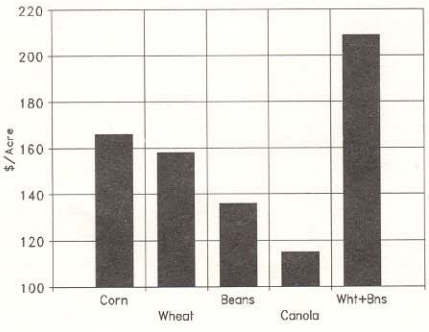
Again for 1992, corn and wheat bases have 15% Normal Flex Acres (NFA) and 10% Optional Flex Acres (OFA). Crops on NFA do not receive deficiency payments, and farmers are free to plant whatever crop they elect (with the exception of fruits, vegetables, and specialty crops). The OFA can also be planted to any qualifying crop; however, it is only eligible for deficiency payments if planted to the program crop. For example, if a farmer plants soybeans on the corn OFA, he will not receive deficiency payments on the portion of the OFA seeded to beans. However, if he plants corn on the corn OFA, he will receive corn deficiency payments on the portion of the OFA planted to corn. These provisions are the same as last year.

Since the 15% corn and wheat NFAs do not receive any government deficiency payments, the most economic crop on these acres is the one which provides the highest anticipated economic returns without government payments.

The calculations in this paper are based on returns per acre above direct costs for average quality Indiana soils. Yields in bushels per acre on these soils are 122 for corn; 39 for soybeans; 61 for wheat; 42 for canola; and 23 for double crop soybeans. Harvest-time prices were as follows in dollars per bushel: corn $2.40; soybeans $5.80; wheat $3.60; and canola $4.75 (50 pound bushel). Direct costs per acre are from Purdue 1992 crop budgets available at Purdue Extension Service offices.

The following figure shows anticipated returns per acre above direct costs. It is clear that wheat plus double crop soybeans provides the highest anticipated returns. However, most Indiana farms will not have wheat plus double crop beans in 1992 either because they are too far north to double crop, or because they did not seed wheat in the fall of 1991. In addition, canola is a late summer seeded crop, and since it was seeded on few acres last fall, it is not a viable crop on most farms for 1992. Thus, the decision for the vast majority of Indiana's crop acres comes down to either corn or soybeans. Corn returns are currently in the range of $25-35 per acre higher than soybeans. Thus, many farmers will find the best crop on NFA acres will be corn.

**Returns Over Direct Costs With No Government**

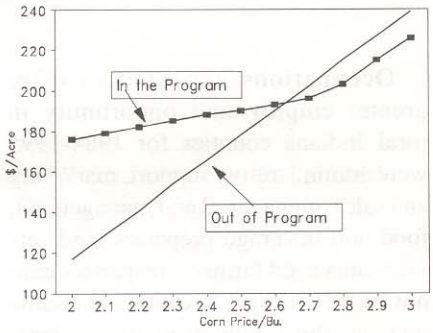



## Key Questions On Corn Base

**1. Should I Participate or Stay Out?**

Each year farmers ask the question, "Can I achieve higher returns by staying out of the program and thus avoiding idle acres in the set-aside?" One of the most critical comparisons is to evaluate potential returns in and out of the program at various corn price levels. This evaluation is shown in the next figure.

**Corn Program: In Versus Out**




Returns in the program are higher than out of the program when price levels are under $2.60 for new crop harvest prices. As prices move above the $2.60 range, anticipated returns are generally better outside the program. While this is an average range for Indiana, those farmers who expect to receive a higher price than the U.S. average, such as those in strong basis areas near the Ohio River, may require a $2.80 level to be better off outside the program. It is also important to remember that the program provides enormous protection from the effects of lower prices, but only modest gains if prices are high. This can be seen on the figure by observing the large potential loss from being out of the program if prices

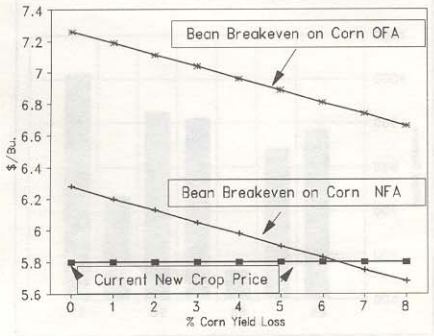
are $2.30, versus the modest potential gain of being out of the program if prices are $2.90.

It is expected that about two-thirds of Indiana's corn base will be in the corn program this year. This is somewhat lower than last year when participation was 70.5% of the state's base. The modestly lower participation is related to higher new crop corn prices this year.

**2. Should Beans Be Planted on Corn NFA/OFA?** Given the assumptions for our analysis, soybean prices would need to be around $6.50 or higher to favor beans on corn NFA, and around $7.50 or higher to encourage beans on corn OFA. These lofty levels would suggest that many farmers should not consider beans flexed to corn. However, most farmers will want to do some further evaluation on this question. For many, added bean acres would mean a reduction of corn-on-corn acres. Purdue agronomists find that continuous corn requires more insecticides, and that yields are about 7% lower than a corn-soybean rotation.

The next figure takes these adjustment factors into account. If corn is planted on last year's corn acres, and corn direct costs are $11 per acre higher, the lines show the soybean price required to provide the same returns as planting corn on the corn NFA and OFA. For example, if yield losses are about 6% for planting corn-on-corn, beans would give returns as high as corn on the corn NFA at bean prices of $5.80 or higher. With the same 6% yield loss from corn-on-corn, soybeans would need to be $6.80 or higher for beans to compete on corn OFA.

**Beans on Corn NFA/OFA**
**With +$11 Cost and Yield Loss**

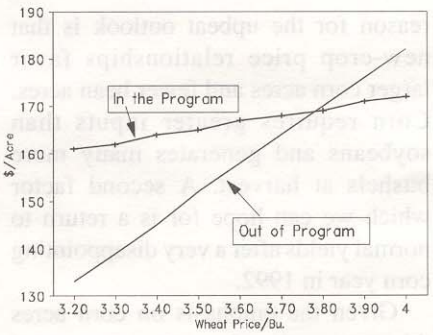



In 1991, Indiana farmers flexed 193,000 acres of beans onto corn NFA and OFA. This year, there is less incentive to do so. However, if farmers consider the consequences of corn-on-corn, and if the new crop bean price rallies somewhat in relation to new crop corn, it may still provide superior returns.

## Key Questions on Wheat Base

**1. Should I Participate or Not?** New crop wheat prices need to be around $3.80 before staying out of the program provides superior returns compared to being in the program. For those expecting a higher market price than the U.S. average, such as those with strong basis levels near the Ohio River, the breakeven levels are closer to $4 per bushel. In a manner similar to corn, participation in the wheat program provides strong protection against the negative financial consequences of lower prices, and only moderately restricts potential financial gains if prices increase as shown in the following figure.

**Wheat Program: In Versus Out**

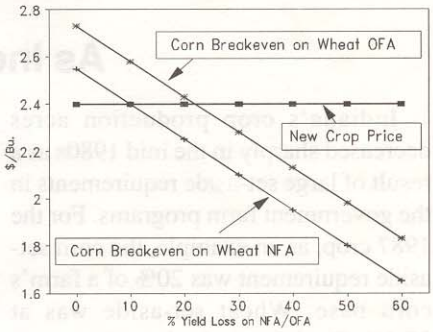



**2. I Have Seeded Single Crop Wheat, But Should I Consider Either Corn or Beans on Wheat NFA/OFA?** Given the assumptions in the basic case, with wheat prices at $3.60, corn prices would need to be above $2.60 to consider tearing up wheat and seeding wheat NFA to corn. Soybean prices would need to be above $7 to consider beans on wheat NFA.

**3. I Have Single Crop Wheat, But Disease or Winter Kill Has Reduced Yield Potential on a Portion of It. How Much Yield Loss Should I Have Before Considering Planting the NFA or OFA to Corn?** Many farms with wheat may have damage from disease or from winter kill. Potential yield losses on single crop wheat need to be surprisingly small before farmers should consider tearing up the wheat and planting corn on the wheat NFA or OFA.

The corn price required to provide similar returns as staying with the wheat for various wheat yield losses are shown in the following figure. If single crop wheat yield losses are as small as 10%, corn should be considered on the wheat NFA. On the OFA, farmers with potential yield losses of 20% or greater should consider corn on the wheat OFA. If the ASCS office determines the wheat OFA to be "failed acres", the OFA will receive the wheat deficiency payments. In this case, the OFA breakeven is the same as the wheat NFA.

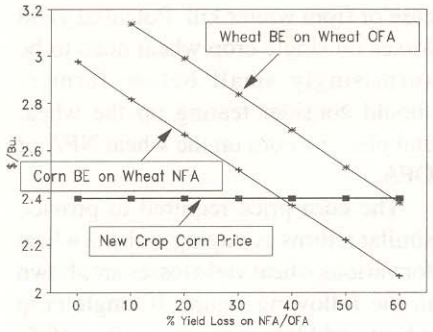
**Corn on Wheat NFA/OFA**
**With Yield Loss on NFA/OFA**




**4. I Have the Same Problem as Above, But Am In the Wheat-Double Crop Beans Area.** The opportunity to get a crop of beans from wheat acreage means that wheat yield losses will need to be higher before considering tearing up wheat and planting corn on wheat NFA or OFA.

These yield losses need to be around 40% or greater to consider planting corn on wheat NFA, and about 60% or greater to consider planting corn on wheat OFA. Again, if the OFA is determined to be "failed acres," the OFA breakeven is the same as the wheat NFA. This is shown in the following figure.

**Corn on Dbl Crop Wheat NFA/OFA With Yield Loss on NFA/OFA**




## Your Best 1992 Program Decisions

The major questions farmers should ask this year on their corn base involve the questions of whether to participate and whether to flex soybeans onto corn NFA. Our evaluation suggests that participation in the government corn program will be down moderately this year, and that fewer acres of beans will be flexed on corn NFA.

Reports from around the state suggest much concern about disease or winter kill in wheat. Farmers with damaged wheat will need to examine the potential for lost yield, and evaluate the economic prospects of flexing corn or soybeans onto their wheat NFA, or even OFA, if yield losses are severe. Wheat producers also need to work with their ASCS office regarding the provisions for "failed acres" if wheat losses are apparent.

New crop prices are more volatile this year than last year. Both the level and the relative prices of corn, soybeans, and wheat are important in making 1992 program decisions.

More than in any recent year, farmers will need to keep these relative price levels in mind as they make planting decisions, remembering that planting intentions given to the ASCS at sign-up time do not have to be followed. For this reason, it is important to keep some flexibility in mind as spring approaches.

Your agricultural agent at the Purdue University Cooperative Extension Service office has worksheets to help evaluate your basic corn and soybean program decisions. In addition, a computerized economic evaluation using your farm's input data is available to help evaluate important program decisions, including relative price levels required to plant alternative crops on corn or wheat flex acres. Please use these free Purdue services to make your best program decisions for 1992.

# A Billion Bushel Year As Indiana Land Goes Back To Work

Indiana's crop production acres decreased sharply in the mid 1980s as a result of large set-aside requirements in the government farm programs. For the 1987 crop, as an example, the corn set-aside requirement was 20% of a farm's corn base. Wheat set-aside was at 27.5%. Participants in the government program that year put over two million of Indiana's 12 million acres of crop base into set-aside.

Since that time, set-asides have been decreasing with more land being returned to crop production. With the 1992 corn and wheat set-aside levels at only 5%, Indiana farmers will continue to plant more acres, as shown in Figure 1. Early unofficial estimates suggest that planted acres to the three primary crops of corn, soybeans, and wheat will reach about 11.3 million acres this year. The USDA will officially release *Planting Intentions* in late March.

At this early point in the year, input suppliers and grain elevator managers can anticipate a favorable demand for their products and services in 1992. One reason for the upbeat outlook is that new-crop price relationships favor larger corn acres and fewer bean acres. Corn requires greater inputs than soybeans and generates many more bushels at harvest. A second factor which we can hope for is a return to normal yields after a very disappointing corn year in 1992.

Given the emphasis on corn acres this year, and with a return to normal yields, production of corn, soybeans, and wheat in Indiana could be near one billion bushels, as shown in Figure 2. This volume of production would be nearly 40% higher than last year and could exceed the previous record in 1982. Production of this magnitude would return the grain storage and grain handling industry to near full utilization.

**Figure 1. Indiana Planted Acres to Corn, Soybeans, and Wheat**

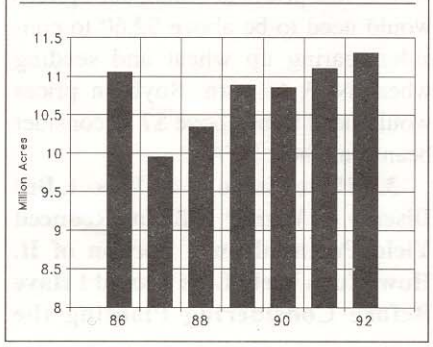
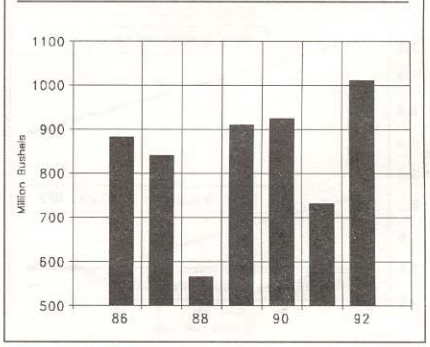



**Figure 2. Indiana Production of Corn, Soybeans, and Wheat**



# Farm Decision-Makers' View of the Future

*Gerald Ortman, Visting Associate Professor; George Patrick, Professor; and Howard Doster, Associate Professor*

Farmers operate in an uncertain environment characterized by variable weather conditions, changing prices, advancing technology, changing government policies, and changing international trends. Many farmers expect less government support in the future and thus will bear more risks themselves. Therefore, demand will increase for information that will help farmers make better decisions.

More than 80 principal farm decision-makers who attended the 1991 Top Farmer Crop Workshop at Purdue were surveyed on many topics, including the following looks to the future:

- the factors they expected would alter their farm's direction in the next 10 years
- their most difficult management problems over the next 10 years
- their most significant management opportunities over the next 10 years

These farm decision-makers were asked what factors might lead to a different direction for their farm operation in the next 10 years. Sixty-six farmers responded to this question. Responses are summarized in Table 1.

About 30% of the respondents indicated that changing market conditions would have an important influence on the direction of their farm operation in the future. Closely related to this in importance, 27.3% of responses, is changing enterprise profitability and the effects of technology leading to different enterprise mixes on the farm. Changing family relationships (24.2%), labor changes (availability, dependability) (18.2%), as well as changes in financial strength (13.6%) are factors expected to influence the direction of business in a significant way. In addition, adverse weather and risk, government programs, and environmental issues were seen as important factors by some farmers (but these are not shown in Table 1).

**Table 1. Factors Expected by Respondents to Lead to a Different Direction of their Farm Operation in the Next 10 Years.**

| Factors | Respondents (N=66) Frequency | Percentage[1] |
|---|---|---|
| 1. Changing market demand/outlook | 20 | 30.3 |
| 2. Changing enterprise profitability or technology (leading to diversification or specialization) | 18 | 27.3 |
| 3. Changing family relationships (children joining business, retirement, partnerships) | 16 | 24.2 |
| 4. Labor changes (availability, specialization, dependability) | 12 | 18.2 |
| 5. Changes in financial strength (returns, capital availability) | 9 | 13.6 |

*1 Percentages add to more than 100 because some respondents gave more than one answer.*

**Table 2. Most Difficult Management Problems over the Next 10 Years.**

| Management Problems | Respondents (N=72) Frequency | Percentage[2] |
|---|---|---|
| 1. Labor (attracting, training, keeping quality employees; managing labor) | 22 | 30.6 |
| 2. Finance (obtaining capital, debt reduction, maintaining profitability, positive cash flow, taxes, investments, raising income) | 21 | 29.2 |
| 3. Environmental issues (environmental regulations, groundwater, chemicals) | 16 | 22.2 |
| 4. Marketing | 12 | 16.7 |
| 5. Transfer of business (father to children, retirement, multiple management, partnership) | 10 | 13.9 |

*2 Percentages add to more than 100 because some respondents gave more than one answer.*

The most difficult management problems over the next 10 years, as given by the respondents, are reported in Table 2. Seventy-two farmers answered the question, many giving more than one management problem.

Issues regarding the hiring, training, and keeping of quality employees (the management of labor) were of concern to nearly one-third of the respondents. Problems regarding finance, namely obtaining capital, reducing debt, maintaining profitability and cash flow, and where to invest, were seen as important by 29% of the farmers. Environmental issues were prominent (22.2% of respondents), as were marketing problems (16.7%) and transfer of property to children and partnership issues (13.9%). Among responses not included in Table 2, the question of land expansion (11.1%) was the most important. Concerns with government programs and bureaucracy, and producing at a low cost were of concern to 9.7% and 6.9% of the respondents, respectively. Weather variability, mastering no-till, and personal time management were also indicated as important by some farmers.

The most significant management opportunities over the next 10 years, as viewed by the respondents, are reported in Table 3. Sixty-three farmers answered this question, many providing more than one response. Nearly one-half of the respondents indicated that a significant management opportunity in the next 10 years is to expand the business by either renting or buying more land. Some respondents pointed out that the average age of the U.S. farmer is relatively high and increasing, so that there will be many opportunities to expand the land base by renting or buying land from retiring farmers. One of the objectives is to take advantage of economies of size, that is, to spread fixed costs over more units of output. About 29% of the respondents mentioned lowering unit costs (increasing efficiency or productivity) with the use of new technologies and no-till operations.

Marketing opportunities were also regarded as important by 35% of the farmers, hiring and retaining quality labor by about 10%, and financial progress and management by 8%. In a sense, all the management opportunities that were indicated combine to make farmers more productive and competitive in the future farming environment.

In conclusion, farm decision-makers who participated in this study could be regarded as above-average farmers in terms of management ability — 80% of them use computers, their education levels are higher than average, their farm businesses are larger than average, and they view their own management abilities (although subjective) as above-average. Because these farmers will probably survive in the future, results of this survey may be of interest to other farmers, university researchers, the extension service, other government agriculture departments, and private consultants and institutions advising farmers.

The survey also contains information about the types of business arrangements among these progressive farmers, gross farm sales, debt-to-asset ratios, ratings of various information sources, needs regarding computer services, main sources of risk, responses to risk, and off-farm activities.

For a copy of the complete summary paper, "Information Sources, Computer Use, and Risk Management: Responses of Participants in the 1991 Top Farmer Crop Workshop," contact: George F. Patrick, Dept. of Agricultural Economics, 1145 Krannert Bldg., Room 647, Purdue University, West Lafayette, IN 47907-1145.

**Table 3. Most Significant Management Opportunities over the Next 10 Years.**

| Management Opportunities | Respondents (N=63) Frequency | Percentage[3] |
|---|---|---|
| 1. Expansion of business (more land rented and purchased) | 30 | 47.6 |
| 2. Marketing opportunities (options, futures, GATT, vertical integration) | 22 | 34.9 |
| 3. Lower costs of production (new technologies, no-till) | 18 | 28.6 |
| 4. Hire and retain quality labor | 6 | 9.5 |
| 5. Financial progress/management | 5 | 7.9 |

*3 Percentages add to more than 100 because some farmers gave more than one response.*

# Tax Tips for 1991-92

*George F. Patrick, Extension Economist*

Tax year 1991 is over for most farmers, but tax returns still need to be filed. There are still a few decisions which may impact taxes for 1991 and future years. Farmers may also want to consider whether different procedures of paying labor and obtaining health insurance might result in tax savings in 1992 and later years.

## Section 179 Expensing

The recently proposed regulations clarify what sources of income are considered in determining the taxable income limitation for Section 179 expensing. Under Section 179, up to $10,000 of qualifying assets purchased during the year may be deducted instead of being depreciated. For a farmer, the net profit or loss from the Schedule F is combined with several other sources of income to determine the taxable income limitation. The net Section 1231 gains or losses, generally reported on Form 4797, and the individual's share of partnership and/or S corporation taxable income are included. Salary and wage income received by the farmer and/or spouse and other business income are also included in determining the Section 179 income limitation.

For example, assume that a farmer has a loss of $12,000 on Schedule F in 1991 and a gain of $2,000 reported on Form 4979 from the sale of assets used in the farm operation. The farmer has net income of $1,500 from seed corn sales and the spouse has $17,500 wages from an off-farm job. The couple would have a total of $21,000 income for various sources minus the $12,000 Schedule F loss, or $9,000 of income for the Section 179 expensing. Thus, up to $9,000 of qualifying assets purchased in 1991 could be expensed.

Farmers whose incomes were low in 1991 may want to forgo Section 179 expensing. The expanded definition of taxable income for Section 179 purposes may allow some income tax savings, but the self-employment tax effects should also be considered. By not expensing 1991 capital purchases, a farmer will have larger depreciation deductions in 1992 and later years. These larger deductions reduce income for both income and self-employment tax purposes.

## Final Quarter Limitation

If more than 40% of all assets acquired during the year are acquired during the last three months of the tax year, the mid-quarter convention (rather than the mid-year) convention is used for all assets acquired that year. However, the 40% test is made **after** any Section 179 expensing is used. This is a change from interpretations made prior to the proposed IRS regulations released in March 1991.

Depending on individual circumstances, use of Section 179 expensing may increase or decrease the amount of regular depreciation. For example, if a farmer bought a $15,000 drill in March and a $20,000 planter in December, the final quarter limitation would apply. Using the mid-quarter convention, depreciation would be $3,348.50 (18.75% x $15,000 plus 2.68% x $20,000). This is less than the $3,748.50 depreciation with the mid-year convention (10.71% x $35,000) which would have applied if the planter had been purchased before October. If one elected to use Section 179 of $10,000 on the planter, less than 40% of the assets would have been acquired in the final quarter and the mid-year convention would apply. Depreciation would be $2,677.50 (10.71% x $15,000 plus 10.71% x $10,000) plus the $10,000 Section 179 expensing.

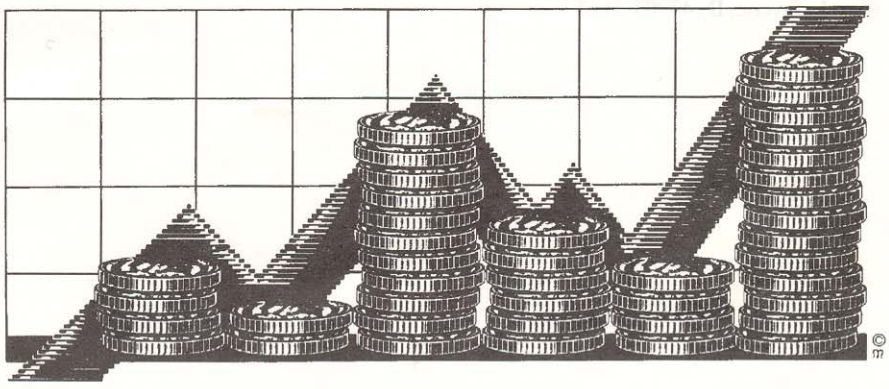
Careful election of the assets to be expensed and the amount of expensing may have a substantial effect on the amount of depreciation which may be taken in a year.

## Depreciation Alternatives

Farmers may elect to use slower methods of depreciation for assets acquired in 1991. Use of straight line depreciation over the 7-year MACRS class life or the 10-year optional period for most agricultural machinery will reduce the depreciation deduction in 1991. This might help avoid a loss situation for 1991. Larger depreciation deductions will be available in future years when income and earnings from self-employment may be higher.

## Net Operating Losses

Farmers who have net operating losses (NOL) in 1991 have some tax management alternatives. An NOL arises when expenses on Schedule F exceed farm receipts and other income. A 1991 NOL is carried back for three years, to 1988, unless a farmer elects to carry the NOL forward to reduce taxable income in future years. Carrying an NOL back may result in a refund of income taxes paid, but there is no effect on self-employment taxes paid.



The election to forgo the NOL carryback must be made by the due date of the NOL year tax return by attaching a statement. As with the NOL carryback, carrying an NOL forward to 1992 will not reduce future self-employment tax liability.

## Noncash Wages for Agricultural Employees

Payment of agricultural workers in farm commodities rather than cash has been popular with some farmers. Under current law, neither the employer nor the employee is subject to social security taxes on these noncash wages. There is no self-employment tax on the sale of commodities by the employee. However, payment in noncash wages does not qualify the individual for benefit coverage by the Social Security Administration.

The IRS has served notice that they will examine transactions involving noncash wages carefully. It is a good idea to have a written employment contract detailing the duties of the employee and the rate and form of payment in **units of the commodity**. If use of the employer's facilities, such as a truck, grain bin, or feedlot is involved, the employment contract should either set a rental rate which the employee pays or indicate that the free use is part of the employee's compensation. Any rent-free use should be treated as additional noncash compensation and included in the employee's wages for income tax, but not for social security purposes. Treatment of facility use should be consistent on both the employer's and employee's tax returns. Finally, it is important to show that the employee has "dominion and control" of the commodity before it is sold. For arrangements involving spouses, proceeds of the sale of the commodity by the employee should be deposited in an account which is **not** used to pay the farm expenses.

## Health Insurance

Congress extended the income tax deductibility of 25% of the cost of health insurance for self-employed individuals through June 30, 1992. A qualifying individual may deduct 25% of the cost of the family's health insurance as an adjustment to income, but not as earnings from self-employment.

Employers may generally provide tax deductible health and accident insurance to their employees and such insurance is **not** taxable income to the employee. (Special rules apply to employee-shareholders of S corporations.) A farmer who is sole proprietor may provide tax deductible health and accident insurance coverage to his or her spouse who is employed on the farm. Furthermore, the farmer may be covered by the insurance as a family member of the employee. It is important that a true employer/employee relationship be established. The farmer employer is **not** required to provide health and accident insurance to all farm employees.

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