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ROLES AND LIMITATIONS OF ENTERPRISE DIVERSIFICATION

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A hallmark characteristic of "modern" production technology is specialized, large-scale production. Farms in the Northern Plains have followed national trends over the past 2-3 decades in having fewer enterprises (often with the elimination of livestock) and becoming ever larger.

Because of unusual moisture and temperature conditions experienced in South Dakota during 1992, some crops in some regions fared "better than ever" and others were dismal failures. Farmers who have experienced this "rocky road" may find it useful to consider the relative merits of continuing with current production patterns versus possibly shifting into new enterprises. In many states, "alternative enterprises" is a current buzzword.

The purpose of this newsletter is to briefly outline the basic rationale for recent trends toward larger and more specialized farms and to indicate some of the possibilities and limitations with smaller-scale, more diversified operations. While illustrations in the newsletter are from farming, many of the basic principles also apply to agri- and non-agri-businesses.

Basic rationale for enterprise specialization

Through specializing in one or only a limited number of enterprises, producers are often able to reap the benefits of economies-of-size and associated "lowest possible" per-unit costs of production.

A main reason for per-unit costs of output being less with large-scale production is that total fixed costs are
(Continued on p.2)



HOG OUTLOOK

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Record production of pork (17.1 billion pounds) in 1992 likely will be followed by another record (close to 18 billion pounds) in 1993. That, along with increases in the supply of beef and poultry, likely will create enough downward price pressure to keep prices at or slightly below 1992 levels.

On a quarter by quarter basis, prices in 1993 should be above 1992 levels during the first and third quarters and below 1992 levels during the second and fourth quarters. That translates into prices in the low to mid-\$40's in the first quarter, the low \$40's in the second quarter, the mid-\$40's in the third quarter and around \$40 in the fourth quarter.

Several factors, in addition to the supply situation, will play a key role in the pricing arena for hogs. They include foreign trade (that was a big positive factor late in 1992), domestic demand (also a positive factor in 1992), and expansion (not at a rapid rate now, but that could change given above \$40 prices early in 1993). Also, lower grain prices have helped producers lower their breakeven so that lower prices don't always mean losses.

If prices in 1993 stay close to or above \$40 and if corn prices stay close to current levels, most producers should earn some profits. Only if prices drop much below \$40 (maybe below \$35) will there be enough pressure to force many producers out of business. Put another way, prices forecast for 1993 likely will be high enough to keep production at a level which will cause fairly low prices not only for 1993 but also for 1994.

spread over larger amounts of output. Further, advances in mechanical technology have often led to large-scale machinery for which per-unit costs of production are less. Larger-scale farmers can sometimes avail of quantity discounts when buying inputs and quantity premiums when selling outputs. On specialized farms, capital inputs must be acquired for producing only a few, rather than many, enterprises. Higher levels of managerial expertise can sometimes be achieved if producers are able to concentrate their time and mental energy on only a few enterprises, a point which has particular pertinence as production and marketing methods and processes become ever more complex.

While these arguments for enterprise specialization are strong, not all "the truth" revolves around them. The remainder of the newsletter is devoted to an examination of three possible counter-arguments to enterprise specialization. Sometimes--through enterprise diversification--producers can realize more efficient resource use, reduce ecosystem deterioration, and reduce income risks.

Enterprise diversification: A possible means to improve efficiency of resource use

If production units become too specialized, they may fail to capture potential benefits from synergism. At the core of a "synergistic" production system is a tight-knit integration among the component parts of the system, such that the whole is equal to more than the sum of the system's individual parts.

By carefully choosing combinations of enterprises/economic activities, producers can take advantage of production complementarities and complementarities (i.e., from a given amount of resources, produce more of one commodity with no loss--and sometimes even a gain--in the amount of another commodity), and thereby reap the benefits of synergism. Such complementarities and complementarities can involve enterprise symbiosis, waste products from one enterprise becoming inputs to another enterprise, and intensified use of "fixed" labor.

"Enterprise symbiosis" involves positive biological and economic interactions among various enterprises in

a production system.

Consider possible interactions between crop rotations and livestock, for example. Livestock add value to forages and other crops and recycle nutrients back to the soil through manure. Forage legumes add nitrogen to the soil, break grain crop pest cycles, and provide feed for livestock. By including both crops and livestock on their farms, producers can minimize the very substantial costs of transporting bulky forages and livestock wastes that otherwise would be required on farms specialized in only crop or livestock production. Thus, livestock without forage legumes in crop rotations may not be profitable on a particular farm; similarly, forage legume rotations without livestock may not be profitable. However, integrated livestock, forage legume crop rotation farming systems may be profitable.

In addition to biologically-based symbiosis, farms with both crop and livestock enterprises can avoid market transaction costs otherwise involved in the exchange of ownership of (1) crops sold to intermediaries by specialized crop farmers and (2) crop feedstuffs purchased from intermediaries by specialized livestock farmers.

A special case of enterprise interdependence involves the recycling of waste products. Livestock, for example, are often able to graze land unfit for tillage and consume feeds not fit for human consumption. In turn, they produce manure which can become a source of soil fertility in crop production.

By diversifying a farm's enterprises, producers can often make fuller use of "fixed" labor in periods of the year when that labor would otherwise be unused. This point has particular validity in respect to labor intensive specialty crop and livestock enterprises. Similarly, by pursuing part- or full-time off-farm rural-based employment opportunities, rural households can augment the income earned from their farm enterprises.

Enterprise diversification: A possible means to reduce ecosystem deterioration

The "modernization" of agriculture during the past 3-4 decades has involved

development and adoption of intensive production systems in which yields per unit of land have increased greatly. Producers adopting modern production methods have tended to specialize in a limited number of enterprises and to apply heavy dosages of (1) synthetic fertilizers to increase yields and (2) agricultural chemicals to control weeds, insects, and diseases.

While such modern production methods have permitted major needed increases in food production, in certain places, negative longer-term side-effects have arisen. Illustrative side-effects are the leaching of excess chemicals into soil and ground water and the run-off of excess chemicals into surface water. When this happens, the quality of drinking water for people and livestock and irrigation water for crops can deteriorate to the point at which the health and productive efficiency of water-users is impaired. Similarly, the presence of alien chemicals in the soil can kill some of the soil's micro-plant and animal life essential to the continued health and fertility of the soil.

Farms specialized in only one or a few crops can also experience added pest problems and soil erosion. By moving away from traditional agricultural habitats with multiple plant and animal species, more specialized farmers have lost many natural ecosystem check and balance mechanisms for controlling pests. Further, by moving away from crop rotations involving small grains, row crops, and forage legumes interspersed over time, processes involving (1) the longer-term natural build-up of elemental nutrients, organic matter, and tilth in the soil and (2) natural protection of soil against wind and water erosion have sometimes been hampered.

By diversifying with legume-based crop rotations, farmers can enhance soil fertility by nitrogen which is collected from the air and recycled through nitrogen-fixing legumes and minerals that are released from soil reserves and recycled. By varying plant species and planting seasons from season-to-season, farmers can often interrupt the growth cycles of individual weeds, insects, and diseases that--with monoculture cropping--are self-repeating season-after-season.

Including forage legumes can also be effective in combating weeds because of the legumes' natural competitive nature and their multiple harvests (weeds are cut at the same times as the forage is harvested). The "allelopathic" effects (through chemicals released by plants that suppress growth of other plants), heavy tillering (through space competition), and wide leaf canopy (shading) features of crops such as rye, millet, and buckwheat can also contribute to weed control.

Since certain crop rotation components may generate relatively low short-term profits or even losses (e.g., small grains, green manures), farmers need to include consideration to the economic as well as ecological rationale for possible crop rotations. In analyzing such possibilities, it is important to take into account joint interactions among all enterprises in a farming system and to extend considerations to the intermediate- and long-term, rather than exclusively to the short-term as is often common in decision-making.

Enterprise diversification: A possible means to reduce income risks

Other things the same, the more enterprises maintained by a producer, the less are his production, price, and income risks. The production risk is less because of differing susceptibility of different enterprises to particular adverse growing conditions (e.g., drought, particular disease or insect outbreaks). The price risk is less because the chances of the prices of all enterprises on a farm simultaneously falling is less than the chances of the prices of only one or two of the farm's enterprises falling. Since production and price risks on diversified farms are less, the risks of farmers experiencing years with unusually low farm income are also less. This point is reinforced by the fact that crops which do not fully mature because of adverse growing conditions can often be used as feeds for livestock on diversified crop-livestock farms, thereby avoiding the wasting or near zero-return disposal of only partially matured crops on specialized crop farms.

"Other things" are not always the same, however. A manager with "too many"



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enterprises may have inadequate time and expertise to properly manage each enterprise. Through managerial shortcomings, production and/or marketing set-backs can be experienced. In addition, if a new enterprise is brought into a farming operation for which (1) the production, marketing, and processing technology is not well developed; (2) the farmer has no production experience and little technical information; (3) markets are only "thin" or not yet developed; (4) susceptibility to adverse production conditions is unusually great; and/or (5) the product is highly perishable, the risk of low income to the overall farm operation may actually increase as a result of such an enterprise being introduced into the farming operation.

Conclusion

Enterprise diversification does not represent an automatic solution to

problems of relatively low average and/or rather highly variable farm income. At the same time, diversification does offer certain potential advantages. The intent of this newsletter is to provide "food for thought" to those who may be considering the pros and cons of introducing new enterprises to their farm business operations.

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