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Global warming – impact of greenhouse gases

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husband and wife facing an assertion that the spouse has self-employment income as a general partner in a general partnership for receiving farm program payments.

Another provision, enacted in 2007, perhaps with an objective of addressing the problems now faced on audit, affords another opportunity for husbands and wives to elect out of partnership status. That enactment, involving "qualified joint ventures," specifies that, in the case of a qualified joint venture conducted by a husband and wife who file a joint return for the taxable year, an election may be made to elect not to be treated as a partnership. The husband and wife can be the only members of the electing joint venture and both must be materially participating within the meaning of section 469(f). That meaning of "material participation" requires material participation on a regular, continuous and substantial basis. That provision is unlikely to be helpful in husband-wife situations inasmuch as the spouse qualifying for farm program payments under the "actively engaged" test would generally not be sufficiently involved to meet the higher standard of material participation on a regular, continuous and substantial basis. If that test were met, the spouse would be subject to self-employment tax under the lesser rule of material participation. If the statute providing for the election out of partnership status had specified that the election could be made if one of the spouses is materially participating under that higher standard, the election out would provide a good defensive opportunity for the couple.

In conclusion

Until litigated, it will likely not be known with certainty whether the "actively engaged" test requires less (or more) than the "trade or business" test. Based on the way the two tests have been administered, it appears that the "actively engaged" test requires significantly less involvement than the trade or business test. The one exception to that is the recent controversy over taxation of Conservation Reserve Program (CRP) payments where the Internal Revenue Service has taken the position, which has been roundly criticized, that merely signing up for the program is sufficient for the imposition of self-employment tax on annual CRP payments.

If that is the case, and if the facts support lesser involvement than is required for the trade or business test, the only remaining argument for self-employment tax liability is the argument that the husband-wife arrangement is a partnership. That assertion should be effectively countered with a showing that no partnership exists under state law and that the requirements for a partnership under the Uniform Partnership Act have not been met. However, in a different setting, eligibility of co-owned property for like-kind exchange treatment, IRS has persisted in its belief that use of a partnership tax return as a convenient way to report income and deductions makes the property ineligible for like-kind exchange treatment as an interest in a partnership even though no partnership was intended and no partnership existed under state law. That position by IRS has not been litigated nor has the position that all CRP payments are subject to self-employment tax regardless of the relationship to a trade or business.

IRS seems to be attempting to redraw the line between what is a trade or business and what is an investment asset. Unless Congress steps in, which appears unlikely, litigation is the only way to resolve the issue.

Global warming – impact of greenhouse gases

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(Second in series)

Global warming will have a profound impact on global agriculture, with yet unknown influences on Midwest agriculture. As with most changes, this will provide both opportunities and threats for Midwest agricultural producers. This article discusses the role greenhouse gases play in global warming.

Solar energy heats the earth's surface. But the energy does not stay bound up in the earth's environment forever. Instead, as the earth warms, it emits thermal radiation. This thermal radiation, which is largely in the form of long-wave infrared rays, eventually finds its way out into space, leaving the earth and allowing it to cool. However, not all of the infrared rays pass into space. Some of the infrared rays are absorbed by greenhouse gases and warm the atmosphere. So the amount of greenhouse gases in the atmosphere is directly related to the temperature of the atmosphere. Increased concentrations of greenhouse gases increase the temperature of the atmosphere leading to the warming of the earth's surface.

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The natural carbon cycle

Carbon dioxide and other greenhouse gases go through a natural cycle. Large amounts of carbon pass back and forth between the atmosphere and the earth's surface. For example, growing crops and trees take in carbon dioxide (CO_2) during photosynthesis. The carbon is the feedstock for making the plant and the oxygen (O_2) is released into the atmosphere. When the plant dies and deteriorates or is processed, the carbon is combined with oxygen by microbial processes to become CO_2 and is returned to the atmosphere. So these processes tend to keep the amount of carbon dioxide relatively constant over time.

However, burning fossil fuels takes carbon that has been stored deep in the earth and emits the carbon into the atmosphere in amounts that are too large for the earth's plants to absorb. This is "new" carbon dioxide that is being pumped into the atmosphere.

Changing land-use has the effect of slightly increasing carbon dioxide atmospheric concentrations. Human activities such as burning fossil fuels, releasing chlorofluorocarbons, and deforestation have raised levels of greenhouse gases far above natural levels. Nature requires hundreds of years to remove these excessive amounts of greenhouse gases.

Types of greenhouse gases

Water vapor is the most prevalent greenhouse gas in the atmosphere. Water vapor doesn't stay in the atmosphere very long. Although concentrations can change rapidly on a local basis, globally concentrations remain quite constant. The greenhouse gases that impact the gradual warming of the earth's surface are those that stay in the atmosphere for a long period of time and build-up over time. In spite of their relatively low atmospheric concentrations, their long lifetime makes their influence on global warming large.

The warming impact of different types of greenhouse gases varies according to the warming power of the gas and the length of time it stays in the atmosphere. As shown in Table 1, carbon dioxide has an atmospheric life of 50 to 200 years. So once emitted into the atmosphere, it has a warming effect over a long period of time. Methane, for example, has a life of about 12 years, much shorter than carbon dioxide.

The warming power of each gas varies greatly. For example, methane is a much more powerful greenhouse gas than carbon dioxide. Over a 100 year period, a molecule of methane (CH_4) has 21 times the warming effect as a molecule of carbon dioxide (CO_2), even though it stays in the atmosphere for only about 12 years of the 100 year period.

Table 1. Global Warming Potentials and Atmospheric Lifetimes (years).

	Atmospheric Lifetime	GWP*
Carbon Dioxide (CO_2)	50-200	1
Methane (CH_4)	12	21
Nitrous Oxide (N_2O)	114	289
Other	1-50,000	5-22,800

** Global warming potential over 100 year lifetime*
Source: Intergovernmental Panel on Climate Change, 2007 Report.

To compare the impact of each gas, the warming potential of each gas is computed over a 100 year period as shown in Table 1. The Greenhouse Warming Potential (GWP) is computed for each gas based on its warming power and atmospheric lifetime. As a basis of comparison, carbon dioxide is assigned a GWP of one and the GWP of the other gases are computed in relationship to carbon dioxide. For example, relative to carbon dioxide, nitrous oxide has about 300 times the warming effect. The other gases (halocarbons, perfluorocarbons and sulfur hexafluoride) are also powerful gases. Although the warming potential of the other gases is more powerful than carbon dioxide, carbon dioxide emissions dwarf those of the other gases due to its large volume of emissions.

Atmospheric levels of greenhouse gases

The current rate of increase of greenhouse gas levels in the atmosphere is unprecedented. Focusing specifically on the major greenhouse gas, carbon dioxide, it has traditionally fluctuated from about 180 parts per million (ppm) to about 300 ppm. Carbon dioxide emissions have increased from less than 320 ppm in 1960 to 380 presently. The atmosphere now contains more carbon dioxide than at any time in the last 420,000 years and possibly the last 20 million years.

We can calculate with confidence that, even with severe limits on emissions, carbon dioxide concentrations will be at least 450 ppm by 2050. If we allow for rapid economic growth based on continued use of fossil fuels, carbon dioxide concentrations will reach 600 ppm by 2050 and about 950 ppm by the end of the century (Intergovernmental Panel on Climate Changes, 2007 Report).

Impact on global temperatures

Average global temperature will rise 0.7 to 2.2 degrees Fahrenheit by 2030 and a 2.5 to 10.4 degrees Fahrenheit over the next 100 years (Intergovernmental Panel on Climate Change). Recent scientific reports conclude there is a 40% chance that warming will exceed this range and only a 5% chance that it will be less. There is no scientific

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evidence to suggest that global average temperatures will remain constant or decline in the next 100 years.

Although the earth has warmed and will continue to warm, the temperature increase has not and will not be distributed evenly. The warming tends to be concentrated in certain parts of the world, especially the northern areas. There were also areas that actually cooled slightly.

Projected temperatures increases over the next 100 years are once again not expected to be distributed evenly. The warming tends to be concentrated in the far north. Also, because land is more responsive to atmospheric temperature changes than the oceans, the temperature increase will be greater over the continents than the oceans

This article has focused on the role of greenhouse gases in global warming. The next article will focus on agriculture's role in greenhouse gas emissions.

Value-added business success factors -- strategic planning and implementation

by Don Senechal, Founding Principal, The Windmill Group, F. Larry Leistritz, Professor, Department of Agribusiness and Applied Economics, North Dakota State University, Nancy Hodur, Research Scientist, Department of Agribusiness and Applied Economics, North Dakota State University

(Third in a series of six)

There has been a surge of interest in farmer-owned business ventures that seek to capture additional value from commodities past the farm gate. Some of these ventures have been very successful, some marginally successful, and some have failed. Supported by funding from the Ag Marketing Resource Center at Iowa State University, we conducted in-depth interviews with farmer-owned businesses to determine the key factors that influenced the relative success or failure of these ventures. A better understanding of why some ventures succeeded while others failed provides valuable insight for the success of future farmer-owned businesses. This article focuses on the role of strategic planning and implementation on business success.

Research method

To identify factors having the greatest impact on the success or failure of farmer-owned business ventures, a cross-section of seven farmer-owned commodity processing businesses formed since 1990 in North Dakota, South Dakota, and Minnesota were selected. Extensive interviews were conducted with individuals who played, or continue to play, an important role in the formation and operation of the business. This included leaders in the formation of the business, key members of the management team, selected board members, lenders, local leaders and others.

Research results

Early in the development of a farmer-owned enterprise, the board of directors and management need to work together to define business goals, objectives, and standards. In a previous article the importance of a shared vision by management and the board was discussed. The strategic planning process is where the shared vision is identified and articulated. Typically, management with its industry knowledge and expertise would prepare a strategic plan and present it to the board for approval. The implications of the plan need to be understood by both groups.

Business Assessment

The plan should incorporate articulate a tight, well-defined business focus. Launching a multi-million dollar commodity processing business is challenging enough on its own. But without a well-defined vision and plan for implementing of that vision, the odds of success decline. Management and the board need to realistically assess their business's relative strengths and weaknesses and implement plans that capitalize on the venture's strengths. For example, one business found that it had an advantage over competitors in shipping product to points north and west of its facility. It then focused its marketing program to capitalize on this advantage.

It is important that a new business venture not try to do too much. A new business should focus on being very good at one thing rather than try to do several things. Penetrating a commodity market with thin margins, often the case with a processing business, is difficult enough on its own. Trying to penetrate multiple markets is even more difficult. One business venture attempted to process and market five different products. This posed problems for both marketing and plant operations because of the need to retool each time it began processing a different products. The venture failed within a year of beginning operations.

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