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Prior to joining Pinnacle Actuarial Resources, Paul was employed by Zurich North America. Before then, he worked at American Agricultural Insurance Company. His background includes: loss reserving, pricing, and catastrophe modeling. Paul's pricing experience includes: pricing agricultural products such as Farmowners, Crop Hail and Multi-Peril Crop Insurance (MPCI).

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Farmowners Pricing Should Change With Farms

By Paul A. Vendetti, FCAS, MAAA

When people think of farms, they probably think of pastoral images of rolling hills and large fertile fields with rows of thriving crops surrounding barns and grain silos.

From afar, farms can look alike. However, a closer examination reveals that the farms dotting the American landscape are not all traditional family farms. Some are wineries and restaurants. Others are large corporate operations or "hobby" or "gentlemen" farms.

Since farms are becoming more diverse, insurers providing farmowners coverage should adapt their product coverage and rating approach to mirror the exposure of their insureds. Going beyond the traditional one-size-fits-all approach to farm coverage will enable insurers to provide the most appropriate coverage for clients while enhancing growth and profit opportunities for themselves.

Cultivating Change

The American agricultural economy has changed significantly over the last decade. The number of farms in the United States has decreased while farm

demographics have changed. These demographic changes include: an aging population of farm operators, the rise of corporate farms through consolidation of small family farms and owners of small farms deriving more of their income from non-farm occupations.



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The United States Department of Agriculture's Economic Resource Service's (ERS) report, *Agricultural Income and Finance Outlook*, November 2006, illustrates the demographic changes that occurred from 2002 to 2005 (See Figure 1 on page 2.)

The agriculture industry can no longer be characterized as one homogeneous class of family farmers. Rather, farming

should be viewed as a diverse industry with various ownership structures, operations and exposures. The ERS summarized the farm industry as follows:

- Farming is still a family business with 98% of the farms being family farms.
- Farm ownership structures are diverse. Very small farms are growing in number, but production is moving toward larger farms.
- Small farm owners are receiving much of their income from off-farm work.

Figure 1 - Number of Family Farms by Farm Type, 2002 to 2005

| Farm Type by Annual Sales (000) | 2002 | 2005 | Difference |
|----------------------------------|-----------|-----------|------------|
| Rural Residential | 1,352,876 | 1,417,008 | 4.7% |
| Intermediate (< 250) | 611,324 | 478,806 | -21.7% |
| Commercial - Large (250 - 499) | 86,303 | 85,773 | -0.6% |
| Commercial - Very Large (> 500) | 64,323 | 71,609 | 11.3% |
| All Farms | 2,114,826 | 2,053,196 | -2.9% |

Source: United States Department of Agriculture, Economic Research Service, *Agricultural Income and Finance Outlook*, November 2006.

These characteristics show that farm insurers must recognize the impact of the underlying demographic changes in their farmowner products to successfully insure this diverse agricultural market.

Reaping Better Results

Since there is no single definition of what constitutes a farm, tailoring coverages, rates and underwriting to the risk characteristics of the farmowner can improve insurer growth and profit potential. Historically, the insurance industry has typically viewed farmowners coverage as an extension of the homeowners policy with “add on” coverages for farming equipment and farm liability exposures.

However, with the changing nature of farming, a homeowner-based farm policy may not address all the needs of many farmers or provide the structure insurers need to successfully insure various farm exposures. Many small farms now supplement income with additional operations including restaurants, petting zoos and other entertainment businesses. Others even derive their primary income from non-farming occupations. Corporate farms, for example, have exposures that often go well beyond those contemplated in the typical farmowners policy.

Therefore, understanding a farm’s operational

structure is important for providing the appropriate coverage at the proper price.

Small Farm Coverages

On most small farms, the homeowners exposures are significant and can be insured with typical homeowners coverages: dwelling, contents and loss of use. Many rating plans include basic risk characteristics, such as whether the primary residence is a dwelling versus a mobile home or a primary home versus a seasonally occupied home. Dwelling construction type is also a typical rate factor.

However, consideration should also be given to risk characteristics not currently contemplated in the rating plan. For instance, the goal of farm ownership (e.g. farm is the primary source of income or a “retirement” farm) needs to be considered in the rate structure since it can have an impact on the quality of the farm’s management. In some cases, the farm is the primary source of income. In other

cases, the household income is supplemented by off-farm employment or the farm is simply a “hobby” farm. The number of years of farming experience can also impact the management quality of the farm and affect its risk profile.

These additional characteristics, in turn, will influence the expected losses and profitability of all coverages including dwelling, farm building, farm personal property and farm liability. Risk characteristics related to the quality of management and the farmowner’s professionalism should be considered in the underwriting and rating of farmowner policies. Among these risk characteristics are:

- Percent of income derived from farming
- Years of farming experience
- Age of farmowner
- Credit score of principal owner
- Number of employees
- Acres planted
- Receipts

Further, an underwriting/rating scorecard designed to capture the variety of farm exposures can improve the flexibility needed to rate diverse operations. A scorecard works by assigning points to the various risk characteristics of the insured. The points are

then added to get a final score, which is the basis of the credit or debit.

Certain risk characteristics can be given more weight than others to reflect the greater relationship between those risk characteristics and expected losses. For instance, the percentage of income derived from farming may have a greater range of grades than the number of employees.

Consider two hypothetical farm owners. Farmer 1 is a full-time active farmer with 100% of household income derived from farming. Meanwhile, Farmer 2 is a retired farmer operating a “hobby” farm with 20% of household income from farming.

When the sum of the scoring is complete, Farmer 1 gets a total score of 600, which translates into a relativity of 0.92. Farmer 2 has a score of 125 and a relativity of 1.50. The major differences in the scoring relates to the management goals and income derived from farming. The grade of each risk characteristic and subsequent translation into a relativity score allows for flexibility and judgment in rating plan development. The scorecard also allows for the incorporation of risk factors not presently contemplated in the rating plan.

Farm outbuildings and farm personal property present unique challenges from exposure variations and differing property types. These structures, including barns, silos, confinement buildings and even windmills, can vary as much as the crops and livestock they house. Outbuilding characteristics may be similar to dwellings, including construction, roofing and electrical age.

Since these structures also have exposures unique to their uses and building types, additional variables may need consideration. For instance, if a building is a confinement structure then the variables unique to confinement buildings, such as power sources, alarms and type of livestock

in the containment building, should be taken into account.

Some buildings, barns and silos as examples, need a number of different classes to capture all the characteristics associated with these structures. Since barns and silos are typically subdivided into different classes based upon construction or other characteristics, it is important to review the definition of each risk characteristic to ensure accurate and comprehensive classifications.

Figure 2 - Risk Characteristics Tables and Relativity Table Examples

Percent of Income from Farming

| Percent | Score |
|--------------|-------|
| 90+ | 250 |
| 75 to 89.9 | 150 |
| 50 to 74.9 | 100 |
| 25 to 49.9 | 25 |
| Less Than 25 | 0 |

Years of Farm Ownership

| Years | Score |
|-------------|-------|
| 20+ | 200 |
| 15 to 19 | 150 |
| 10 to 14 | 75 |
| 5 to 9 | 25 |
| Less Than 5 | 0 |

Relativity

| Total Points | Relativity |
|--------------|------------|
| 751 - 800 | 0.50 |
| 700 - 750 | 0.60 |
| 651 - 700 | 0.75 |
| 601 - 650 | 0.84 |
| 551 - 600 | 0.92 |
| 501 - 550 | 1.00 |
| 451 - 500 | 1.10 |
| 301 - 450 | 1.25 |
| 100 - 300 | 1.50 |

Figure 3 - Scorecard for Two Hypothetical Farm Owners

| Risk Characteristics | Farmer 1 | | Farmer 2 | |
|-------------------------|----------------|-------|----------------|-------|
| | Characteristic | Score | Characteristic | Score |
| % of Income from Farm | 100% | 250 | 20% | 0 |
| Full-Time Farmer | Yes | 50 | No | 0 |
| Years of Farm Ownership | 25 | 200 | 5 | 25 |
| Credit Score | Fair | 100 | Fair | 100 |
| Relativity | 0.92 | | 1.50 | |

Note: the percentage of income from farm, years farming and relativity are from the risk characteristics and relativity tables in Figure 2.

Farm personal property includes machinery such as combines, irrigation equipment, crops and livestock. Again, because of the diverse types of equipment a number of classes are needed to capture the different exposures.

Additionally, some small farms with entertainment or other atypical farming exposures, such as restaurants or wineries, must also be considered commercial enterprises. Each additional operation, from food processing to petting zoos, should be analyzed and rated as a commercial risk.

Large Farm Coverages

Large corporate farms, where the residential exposure is an incidental risk, include many different operations not typical of the small family farm. For example, they may include processing, packaging and wholesale distribution operations important to the overall enterprise. Since they have different risk profiles, these larger agricultural businesses often require different coverages and rate structures.

Other considerations for corporate farms include analysis of business income coverages and proper valuation of buildings and other property. Many of the structures on large farms are unique and highly valuable. Therefore, valuing the structure is more difficult than on smaller farms. The complexity of these agricultural operations will impact the underwriting expense because of the potential need for on-site loss prevention surveys and facultative reinsurance.

Recognizing the variety of building types - from processing plants to distribution centers - in the rate structure is necessary to ensure proper pricing. Furthermore, many additional coverages, such as computers and mobile equipment, need to be scheduled and rate structures developed to provide proper coverage.

Finally, business income is a major exposure on these corporate farms. Any rate structure needs to consider the differences in the exposures based upon the different operations covered.

Even more than small farms, flexibility in coverage and rating provide for greater growth and profit potential for corporate farms. Therefore, a scorecard approach for corporate farms, while requiring greater detail, is ideally suited for providing coverage for these operations.

A Predictive Modeling Approach

Besides reviewing the coverages and rating structure to reflect the changing demographics

of the agricultural industry, insurers that offer farmowners coverage can also benefit from predictive modeling.

This approach, which has benefited personal and commercial lines insurers, can also be applied to the farmowners line of business. Predictive modeling can improve rating plans, underwriting decisions and marketing strategies. By identifying new variables and relationships between variables, predictive modeling can lead to better-informed business decisions. Predictive modeling provides a tool to determine the impact of the demographic changes in the agricultural economy and differentiate between diverse industry risks.

Insurers that offer farmowners coverage can also benefit from predictive modeling.

Many of the variables used in predictive modeling for homeowners can be applied to farmowners dwelling and mobile home coverages and corporate farm exposures. However, there are unique characteristics to consider in farmowners coverage, including management structure and farm owner goals and characteristics. For instance, within the small farm segment, what exactly is the impact of different ownership goals? How does the percentage of income derived from farming impact results? What is the impact of the farmer's age, experience and credit score? Predictive modeling can answer these questions and more.

Conclusion

Farmowners products need to change with the demographic changes in the agricultural economy. The good news is insurers can now design rate plans that reflect the realities of the changing agricultural economy. A scorecard approach provides the tools to customize your pricing to the exposures of insured farmers and provides the foundation for achieving long-term underwriting success.

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