AIR Fund Designation Service

HIGHLIGHTS

With the AIR Fund Designation Service, you can:

- Maximize profit potential and minimize earnings volatility
- Make informed allocation decisions using AIR's fully probabilistic catalog
- Set customized designation criteria
- Choose level of exposure based on risk tolerance
- Use the historical information of every policyholder in decision-making
- Benefit from the support of AIR's crop insurance team throughout the year

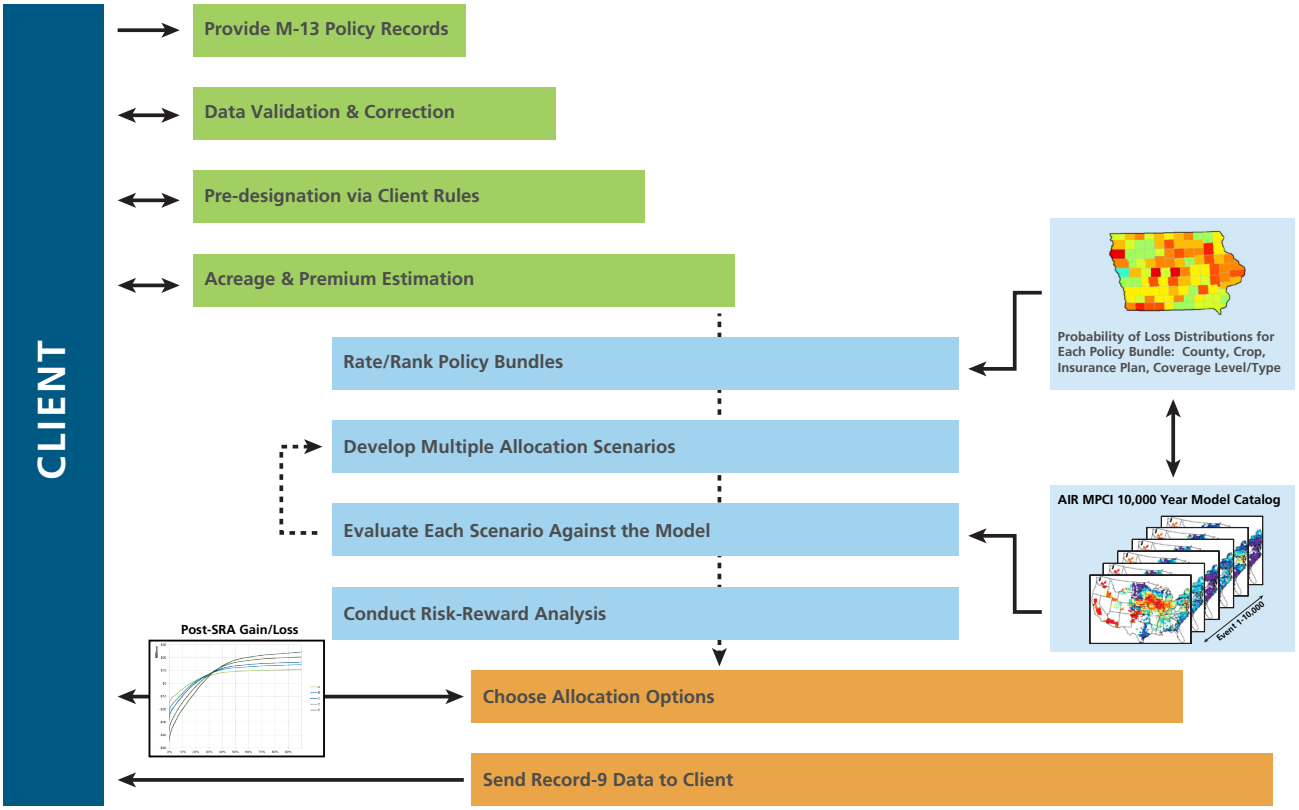
AIR's Fund Designation Service provides clients with best designation alternatives from which they can choose the option that best fits their risk-return target. The service utilizes the 10,000-year weather-based, spatially correlated, price volatility–adjusted stochastic catalog from AIR's U.S. MPCI model to rank and sort policies based on their estimated risk level. Several risk metrics, such as probability of loss, mean loss ratio, and 100-year return loss ratio, are calculated from the catalog and used for risk assessment of individual insurance policies. AIR modelers apply various retention levels to develop multiple fund designation strategies from which the best alternatives—those giving the lowest potential risk for a target expected return—are presented to clients.

Because it is impossible to forecast the yield outcome for the next growing season at the time of the fund designation deadline, the best approach is a probabilistic one. AIR uses 10,000 possible yield and price outcomes, or events, that are equally likely to occur during the next growing season. The stochastic events are based on the current climate, geographically correlated, and trended to current levels of crop technological improvements.

The fully probabilistic fund designation service provided by AIR is the only method that accounts for geographical crop portfolio diversification and full treatment of uncertainty.

The AIR Fund Designation Service offers you alternative strategies with varying profit-potential/risk-of-loss choices. AIR has a proven track record of providing fund designation strategies that have **higher expected gain** and **lower risk of loss** than crop insurers can obtain using traditional actuarial-based models (see "Industry Benchmarking" at the end of this brochure). All of the incremental profit resulting from the AIR Fund Designation Service is pure profit—subject only to taxes—with no additional administrative and operational expenses or Standard Reinsurance Agreement (SRA) co-insurance.

AIR



AIR Fund Designation Service Components

Fund Designation Scope Of Service

The AIR Fund Designation Service has three major steps, each spanning a wide breadth of services. The entire process, which is detailed below, takes about five to seven business days.

STEP 1: DATA PREPARATION AND PREMIUM ESTIMATION

The first step is to validate the data and estimate the premium for every policy in the client's book. The calculated premiums will be used in Step 2 to estimate expected gains/losses for each allocation strategy. The process is described in detail below.

M13 POLICY RECORDS

AIR provides the client with a passcode to log into a secure File Transfer Protocol (FTP) site to upload the M13 Policy Records (i.e., p09, p10, p11, p14, p15, p15a). AIR modelers discuss the sales closing date deadlines with the client and agree upon the timing of deliverables.

DATA VALIDATION AND CORRECTION

AIR checks the data in the M13 records for accuracy and formatting, and makes the required corrections to ensure data consistency.

PRE-DESIGNATION VIA CLIENT RULES

For added flexibility, the AIR Fund Designation Service allows clients to provide a range of desired retention levels or set their preferred pre-designation criteria. The retention percentage can be provided at the state level or for the entire book of business. Any pre-designation targets are taken into account when the designation strategies are developed.

ACREAGE AND PREMIUM ESTIMATION

After validating the M13 data, AIR runs acreage and premium estimators. Our acreage estimator runs logistic regression on historical planting information of each individual policy in the client book (from records p15 and p15a) to estimate next year's planted crop and acreage. The acreage estimator uses the historical planting records to estimate whether rotation planting will be adopted by each policyholder next year. The client's historical book (from record p11) is then used to estimate the unit structure for every registered policy. Finally, AIR's detailed premium estimator is run on each policy in the book to estimate premiums. AIR's premium estimator reads updated premium rates and policy conditions from the current year Actuarial Document Master and calculates the premium based on the USDA Risk Management Agency's stated approach.

STEP 2: DEFINE AND EVALUATE ALTERNATIVE ALLOCATION STRATEGIES

Once the premium for each policy is estimated, AIR runs the core analytics of the model using the 10,000–year catalog to optimize the portfolio. The risk associated with each policy in the book is evaluated and multiple allocation scenarios are developed and assessed to choose the best fund designation strategies. This process is described in more detail below.

RATE/RANK POLICY BUNDLES

AIR rates with a unique probability of loss each policy bundle (a policy bundle is a combination of state/county/crop type/policy type/coverage level/coverage type) in the client book of business using our stochastic 10,000–event set catalog. The stochastic events are modeled yield/price combinations that incorporate our Agricultural Weather Index™ (AWI™) to de-trend the historical yields. The stochastic events are geographically correlated and incorporate the most recent changes in premium rates and policy structures of the MPCI program. The use of the catalog to rank policies leads to the development of an efficient frontier in the risk-return space.

DEVELOP MULTIPLE ALLOCATION SCENARIOS

AIR assigns each one of the previously rated policy bundles to either the Assign Risk Fund or Commercial Fund based on their probability of loss and the premium retention values pre-determined by the client (if the client provides a desired range of retention levels). AIR develops multiple scenarios by allocating policies into either the Assigned Risk Fund or the Commercial Fund. These allocation scenarios will be evaluated in the next step to choose the best allocation options.

EVALUATE EACH SCENARIO AGAINST AIR'S STOCHASTIC CATALOG

For each individual policy designation in the client book of business, AIR has computed a premium value, losses, and a loss ratio using the 10,000 events in our stochastic catalog. AIR ranks the losses and loss ratios for each bundle, and constructs exceedance probability (EP) curves for several dozen designation strategies.

CONDUCT RISK-REWARD ANALYSIS

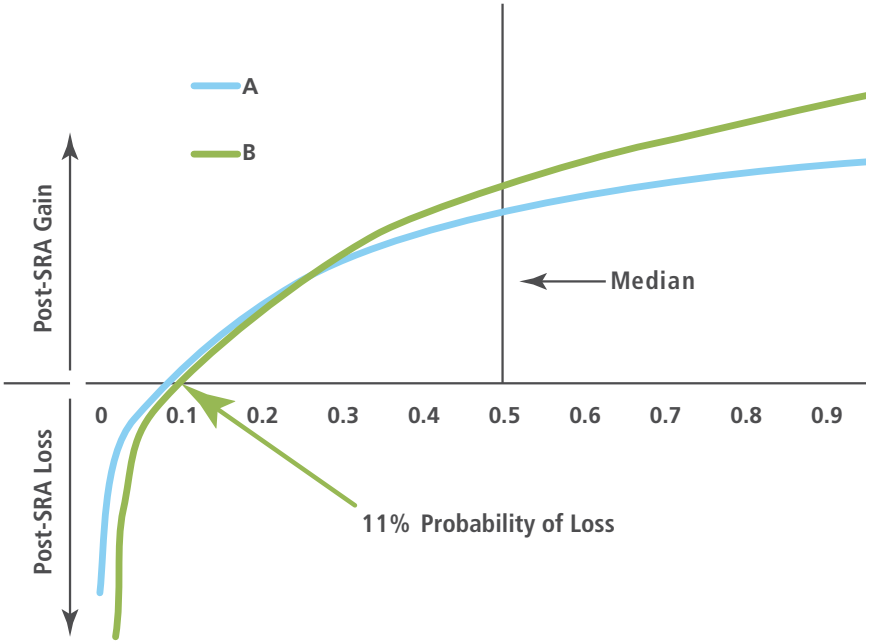
After screening the developed strategies, AIR eliminates those that are redundant (give lower expected return for higher level of risk) and chooses up to seven curves (strategies) that fit pre-designated criteria. AIR compares the client book with the overall industry book in each state to decide whether the client book is riskier than that of the overall industry. If yes, AIR will recommend a majority of conservative options to the client; if not, AIR will recommend a majority of more aggressive strategies.

STEP 3: FINAL ASSESSMENT AND REPORTING

After a set of fund designation strategies within the desired premium retention range are identified, AIR modelers deliver them to the client along with the required metrics (e.g., EP curves for each strategy). AIR then works closely with the client to finalize which strategy or strategies best align with the client's goals. The final deliverables are provided, including a completed Record-9 for each designation strategy. Details of this process are provided below.

CHOOSE ALLOCATION OPTIONS

AIR communicates the chosen allocation strategies to the client (up to seven strategies, plus the basic strategy that designates the entire premium into the Commercial Fund for comparison purposes) and sends the EP curves to make sure they fit the client's risk-return targets. If requested, additional allocation options from the efficient frontier may be provided, along with the associated EP curves.



Example of two fund designation strategies

For each one of the fund designation strategies, AIR provides summary statistics that include the estimated modeled premium in the book of business, the estimated mean loss, median loss, and loss ratio for each strategy, as well as a graph that depicts all strategies superimposed on each other as a function of expected post-SRA gain in dollars (*y* axis) with respect to 10,000 stochastic events that have been ranked from highest to lowest loss potential (*x* axis).

The figure shows an example of the exceedance probability (EP) curves for two fund designation strategies that have different outcomes with respect to potential gains and losses. For example, Strategy A is a safer choice in years of adverse weather, but the gain potential is also limited in years of favorable weather. On the other hand, Strategy B shows a significant potential to increase post-SRA gains in good crop years, but is a riskier strategy with a higher probability of loss during adverse weather years. In the example, Strategy B intersects the *x* axis at an 11% probability of loss, indicating that there are 1,100 events (out of 10,000) that would potentially generate a post-SRA loss.

SEND RECORD-9 DATA TO CLIENT

For each one of the seven fund designation strategies, AIR provides the detailed policy designation in Record 9 format for submission to RMA via our secure FTP site. AIR consultants work one-on-one with the client to clarify modeling assumptions and risk-reward parameters.

Fund Designation Service Timeline of Deliverables

For each sale's closing date during the year (on average two during the fall and four during the spring), AIR requires seven working days from the time a client uploads the M13 records to the time the Record 9 for each of the fund designation strategies is delivered and a follow-up call is made to discuss the results with the client.

Fund Designation Service Applications and Benefits

The AIR Fund Designation Service has several applications that have a direct and beneficial impact on profitability.

RISK TRANSFER BENEFITS

Portfolio risk managers use the output of the Fund Designation Service to determine the optimal reinsurance coverage required to protect their gains. Given that the AIR U.S. MPCI model is the industry-leading model for pricing stop loss and quota share treaties, insurers can potentially save millions of dollars by providing to reinsurers a plan of operations based on the Fund Designation Service output, which will allow them to more accurately analyze a company's unique risk profile against that of other industry peers. From conversations with reinsurers, AIR has learned that they are very open to differentiate and price more favorably the treaty layers of a company using a systematic approach to fund designation.

UNDERWRITING BENEFITS

Portfolio risk managers use the output of the Fund Designation Service to analyze the marginal impact on their profitability of adding new states for which they don't have an underwriting history. When comparing the results of the AIR Fund Designation Service with their internal model, one AIR client discovered that they had been less selective in terms of coverage level, county, and policy type. The AIR Fund Designation Service was able to increase their profitability significantly by choosing better policies to retain and ceding the riskier policies.

Portfolio risk managers also use the output of the Fund Designation Service to quantify the profitability of the books of business provided by different agencies.

ENTERPRISE RISK MANAGEMENT BENEFITS

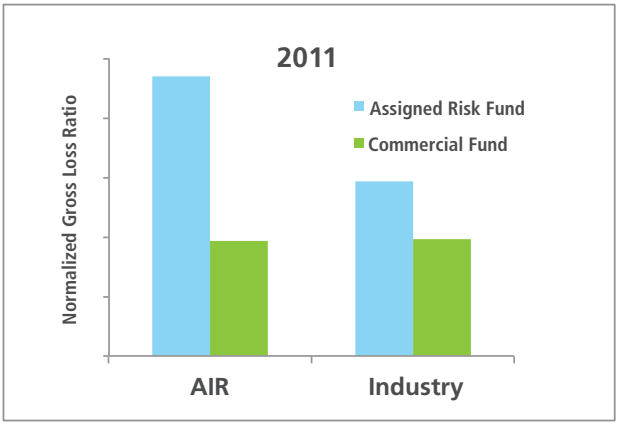
Portfolio risk managers use the output of the Fund Designation Service to communicate with management and stakeholders about the forecast portfolio gains and losses as the crop season progresses. This was particularly critical during the 2012 drought. Rating agencies also require crop insurance companies to be aware of their catastrophe risk potential as part of their rating process, and the Fund Designation Service output supplies all the information needed.

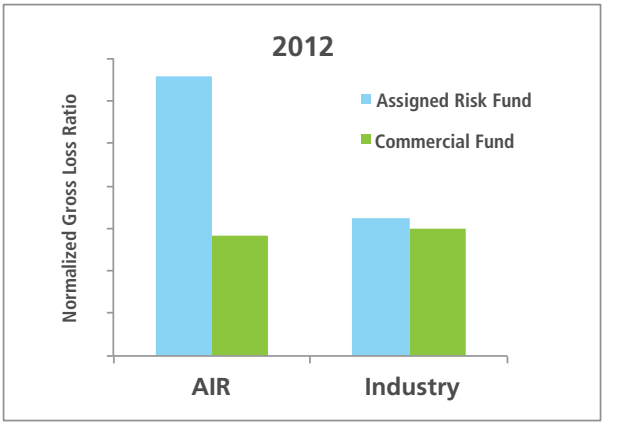
When portfolio risk managers base their decisions on AIR Fund Designation Service output, they can feel confident that the science and stochastic foundations of the U.S. MPCI model on which the output is based are well documented and reliable.

INDUSTRY BENCHMARKING

The bar charts show AIR's performance compared to that of the industry in 2011 and 2012. The comparison is made for similar retention levels and for a state where AIR had a representative market share in terms of volume and geographic diversity, to ensure a like-to-like comparison. The charts show normalized gross loss ratios for the Assigned Risk Fund and Commercial Fund.

An efficient designation would place the riskier policies in the Assigned Risk Fund and the low-risk policies in the Commercial Fund. Thus a good designation should have a higher gross loss ratio in the Assigned Risk Fund compared to the Commercial Fund (i.e., higher difference between the height of the blue and green bars below). The charts indicate that AIR's fund designation outperforms that of the industry in a good year (such as 2011) as well as in a loss year (such as 2012).





If you would like to learn more about the AIR Fund Designation Service, please contact Oscar Vergara at: overgara@air-worldwide.com

ABOUT AIR WORLDWIDE

AIR Worldwide (AIR) provides risk modeling solutions that make individuals, businesses, and society more resilient to extreme events. In 1987, AIR Worldwide founded the catastrophe modeling industry and today models the risk from natural catastrophes, terrorism, pandemics, casualty catastrophes, and cyber attacks, globally. Insurance, reinsurance, financial, corporate, and government clients rely on AIR's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, site-specific engineering analyses, and agricultural risk management. AIR Worldwide, a Verisk (Nasdaq:VRSK) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. For more information, please visit www.air-worldwide.com.

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