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# TARGET MARKETING TIPLINE

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## Target Practice

### The Science of Sample Sizes

By Tracy A. Gill, managing editor, Inside Direct Mail; senior writer, Target Marketing

Testing is the foundation of direct marketing. As Denny Hatch and Don Jackson write in their book "2,239 Tested Secrets for Direct Marketing Success," the ability to test "is what really separates the direct marketing concept from any other form of business model. ... While vertical industry segments may have to put up millions of dollars to retool for product, a direct marketer, using marketing testing methods, can tell for a fraction of the costs if the major investment is worthwhile."

The secrets of these testing methods, asserts Perry Drake, vice president and general manager of New York-based database marketing consultancy Drake Direct, come down to seven straightforward and essential guidelines:

- \* ensure the sample sizes are random and representative;
- \* block sample sizes when appropriate (this mainly applies to telemarketing);
- \* include a control panel in the test plan;
- \* back test package changes to the control;
- \* test only one change at a time to your control;
- \* test only for meaningful interactions; and
- \* ensure adequate sample size.

Of all these rules, it's the last one--adequate sample size--that poses the greatest challenge for many direct marketers. "Without sampling enough names, your test results will have so much error that you will not be able to make a well-informed and solid decision regarding roll out," explains Drake. However, he also cautions, testing more names than is required for the level of precision you need to make an informed decision is a waste of your testing dollars.

So, what is the magic number? The answer, unfortunately, is that it depends on how much error you can tolerate. What's more, your sample size will vary from test to test, depending on such factors as how close the test package costs in relation to the control and how crucial the mailing is (e.g. is this part of your regular monthly drop or your biggest roll out of the year?).

Right now, you may be wondering about this term 'error.' Every time you test to a sample of a universe, you will get a different response rate. However, explains Drake, the good news is that based on

Perry D. Drake of Drake Direct helped co-write an article for Target Tipline to assist direct marketers in designing and analyzing their marketing tests.

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statistical principles, we know that these rates will fall into a bell curve, and we can therefore make inferences about our sample results with confidence. In general, how far your results are off from the list's mean response rate is a function of (1) the number of names you tested and (2) what percentage of the universe or segment you tested to. Some tests will yield results that are higher than the mean and some will come in below it. The more names you test out of that universe, however, the less error you will have in your testing results and the closer your testing results will be to reality.

Another key factor you must consider when determining sample sizes is the confidence level, which in this case refers to a statistical rather than esoteric concept. Confidence is the likelihood that all of the possible response rates delivered by a test will fall into a range. For example, a calculation based on 90 percent confidence will tell you that, with 90 percent certainty, your response rate in rollout will fall in a certain range or interval. The more confidence you want, the more names you will need to sample.

"If you are doing a test where it's really risky to the business if you make a mistake in reading the test, then you want to be up at 95 percent to 99 percent. If you are doing a test where the costs are roughly the same as your control package, you want to be around 90 percent to 95 percent. When the test is cheaper than the control, you can drop it down to 90 percent. I put the stake in the ground at 95 percent," he explains. "Then if my results are significant at this level, I take a look at 99 percent. Or if my results are not quite significant at 95 percent, then I take a look at 90 percent."

Drake offers up the following example to illustrate these concepts: Your control has a 1 percent response rate. A new test format is more expensive, and you determine that to break even, you will need 10 additional orders per thousand, or a response rate of 1.1 percent. So, if your test does in fact meet breakeven, which is great, you also want to make sure you sampled enough names to tell your boss that it was also a significant winner statistically; you don't want to be in a situation where you hit breakeven, but tested too few names to have a statistical winner. To achieve this goal, you'll want the lower bound on the confidence interval associated with the test to go no lower than 1.1 percent (your break-even level). This implies you are willing to tolerate 0.1 percent error. With a tolerable error of 0.1 percent and at 95 percent confidence, you should test about 38,000 names. This will give you a 95 percent chance that your list's true response rate will be within 0.1 percent of your test. (Of course, if you don't have a statistician on staff to help you figure these numbers out, you aren't expected to just know them off of the top of your head. There are a number of products -- such as Drake's free Plan-alyzer software, which was used for the calculations in the above example -- that will do the math for you, based on the specifics of your campaign.)

Determining adequate sample size is more of an art rather than a complex science and is critical to the success of your program, asserts Drake. By taking the time to analyze your tests and determine the figures outlined here--tolerable error, level of confidence--you can begin to build testing programs that are based on solid, statistical information. After all, if testing really is the foundation of direct marketing, then statistically significant results are the keystone.

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