

# Are NASS Maple Surveys Underestimating Production?

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Some have questioned the accuracy of NASS's Maple Syrup estimates. The most common criticisms typically include: some producers don't return their report, some don't report accurately, and some don't receive a report. I will address each one separately.

First, let's start with producers that don't return their report. Our survey and estimation procedures are designed to account for all known producers. NASS maintains a list of farm operators for each state. This list contains information about each operation such as total acres operated, crop acreages, livestock inventories, etc. The number of maple taps are one of the items. NASS uses a random sample of producers with over 100 maple taps for our annual Maple Syrup Production Survey. The 100 maple tap minimum means we are excluding most of the "backyard sugarmakers" that don't sell their syrup. We use a random sample of producers instead of trying to contact all producers because doing so would be extremely expensive.

Prior to constructing our random sample, the producers are divided into groups by their number of taps. These groups are called strata. We then select a random sample of producers from each stratum. Thus, the sampling technique is called Stratified Random Sampling. Larger producers are selected more heavily than smaller producers because they have a greater impact on the accuracy of our estimate. The number of strata will vary by state, and depends

on the number of producers and the number of taps for the largest producers. States have between three and six strata.

By example, a hypothetical state may have 100 producers on its list, with 20 large producers, 30 medium, and 50 small producers. For the sample we select all 20 large producers, 15 of the medium producers, and 20 of the small producers for a total sample of 55. Then we contact the producers in the sample by mailing each a questionnaire, and follow-up by phone with those that don't return their questionnaires by mail. At NASS we work to get an 80 or better percent response rate. Some producers will refuse to cooperate, others are available during our data collection period.

Say we got complete reports for 18 of the large producers, 11 of the medium producers, and 15 of the small producers for a total of 44 reports which is an 80 percent response rate:  $(44/55) \times 100$ . We now need to adjust the reported data to account for producers that were not in the sample and for those that didn't report. This is done by calculating an adjustment factor for each size calculated by dividing the number in the size group by the number of responses. For the large producers this factor is  $20/18=1.11$ , for the medium producers it is  $30/11=2.73$ , and for the small producers it is  $50/15=3.33$ . The reported data is multiplied by the ap-

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appropriate adjustment factor, and the resulting values are summed to make an estimate for all 100 producers. Thus we have accounted for producers that didn't report.

As for producers that don't report accurately, we don't believe this is a significant issue. Our experience indicates that the vast majority of producers do report as accurately as possible. There may be a few that respond falsely, but since we have what they reported on previous surveys we can follow-up if someone is reporting something significantly different from previous reports.

The criticism where I have to admit that we probably are underestimating taps and production is that we don't have all maple producers on our list. NASS maintains a list of farm operations in the US which includes maple producers. This list has been constructed over the years using sources such as other federal agencies, agricultural associations, information in the public domain, and farmers voluntarily providing their contact information. However, lists are very seldom complete,

especially if the number of producers is increasing, which is the case with the maple industry.

Here is a simplistic example of our situation. Say you have a list of 100 maple producers and you collect data from 50 of them. If you multiply the results by two then you have an estimate for all 100 producers. But what if you know there are more than 100 producers but you don't know how many or how large they are? It is impossible to accurately include these operations in your estimate.

The easiest way to minimize the underestimation would be for all the maple associations to provide their membership lists and attendance at maple schools and conferences to NASS. I know some have and others have encouraged their member to provide NASS their contact information. Producers can provide their contact information on-line at <https://www.agcounts.usda.gov/cgi-bin/counts/>. The information provided is kept confidential by law, Title 7 of the U.S. Code, and will not be disclosed to any other government or private entity.

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You can give a dollar amount or a percentage or your estate, or you can

list NAMSC as the beneficiary of your bank accounts, retirement plan or life insurance. Contact your attorney for information on how to revise your will, or your financial institution, plan administrator, or life insurance agent for the procedures required to revise your beneficiary designations.

The information needed for your legal documents is: North American Maple Syrup Council, PO Box 581, Simsbury, CT 06070.