Instructions for the Animal Sample Size Table

Last Modified:

The Animal Sample Size Table provides sample sizes for a range of the total number of animals in an epidemiological unit and a range of prevalence thresholds among those animals in an epidemiological unit.

An epidemiological unit is a group of animals with the same likelihood of exposure to a pathogenic agent. In certain circumstances, the epidemiological unit may be a single animal. In other situations, this could be a pen, a barn, a pasture, a herd, a flock, or an entire premises.

How to Use the Animal Sample Size Table

To find the recommended minimum sample size to test for disease in an epidemiological unit, open the Animal Sample Size Table and then:

1. Adjust the Confidence Level if a level different from the default of 95% is desired.
2. Enter the diagnostic sensitivity of the test to be used. If a range of test sensitivities is given, use the lower end for a more conservative sample size (greater number of samples).

3. Select the column corresponding to the Prevalence Threshold of Disease (0.01%–95.00%) required to meet the surveillance objectives. Recommended values range from 2–10%. Note that 10% of 50 means there are 5 infected animals on the premises, while 10% of 50,000 means there are 5,000 infected animals on the premises.
4. Select the row equal to (or nearest to) the total number of animals in the epidemiological unit (1–100,000) to be sampled. Round up to be conservative.
5. Read the number listed at the intersection of the selected row and column.

This number corresponds to the **minimum number of animals** that should be randomly sampled from the total number of animals in the epidemiological unit to achieve the desired probability of detection when using a diagnostic testing protocol with the sensitivity entered.

This sample size table assumes individual animal specimens are collected and submitted for testing. When specimens are pooled, a conservative sample size can be estimated by dividing the minimum number of individual animal specimens to collect (provided by this table) by the pool size and then adding one additional pool. When the specimens tested represent an aggregate sample from a pen (or barn or some other grouping of animals), the unit being tested is the pen (barn or group), and the prevalence threshold among the pens (or barn or group) should be used to compute the sample size. Remember that a group is infected when one animal in the group is infected. Be very careful about the diagnostic testing protocol sensitivity value used to determine the sample size for aggregate specimen types because this sensitivity may be a function of the group size and the number of infected animals in the group.

Disease situations, veterinary knowledge, epidemiologic expertise, or other factors such as resource limitations (e.g., monetary, personnel) may indicate a need for a sample size that differs from the one provided from this table. If a deviation from the sample size must be made, particularly a smaller sample size, keep the Confidence Level at 95% or above and note the Prevalence Threshold of Disease associated with the desired sample size. Consider the consequences of missing disease below this new threshold.

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