

## Producer Disease Awareness on U.S. Sheep Operations, 2011

For the Sheep 2011 study, the U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) collected data on sheep health and management practices from a representative sample of operations in 22 of the Nation's major sheep-producing States, which were grouped into 3 regions.<sup>1</sup> These operations collectively represented 70.1 percent of U.S. farms with ewes and 85.5 percent of the ewe inventory.

One objective of the Sheep 2011 study was to examine producers' awareness of a select number of diseases: scrapie, Johne's disease, ovine progressive pneumonia (OPP), Q fever, and toxoplasmosis. Q fever and toxoplasmosis can infect humans and are zoonotic diseases. Awareness of these particular diseases<sup>2</sup> can increase operation productivity and decrease the impact of zoonotic disease spread from sheep. Data for this report on disease awareness were collected from 1,241 operations with 20 or more ewes. Full study results are available online at <http://www.aphis.usda.gov/nahms>.

### Scrapie

Scrapie is a fatal degenerative disease affecting the central nervous system of sheep and goats. Infected flocks with a high percentage of susceptible animals can experience significant production losses. Animals sold from infected flocks can spread scrapie to naïve flocks, and the presence of scrapie in the United States prevents the export of breeding stock, semen, and embryos to many other countries. The USDA has established two programs—the National Scrapie Eradication Program (NSEP) and the Scrapie Flock Certification Program (SFCP)—that work in concert to eliminate scrapie from the Nation's sheep flocks and goat herds. Both programs are cooperative efforts between producers, allied industry, accredited veterinarians, State animal health officials, and USDA's Animal and Plant Health Inspection Service (APHIS).

#### <sup>1</sup> Regions:

**West:** California, Oregon, Washington

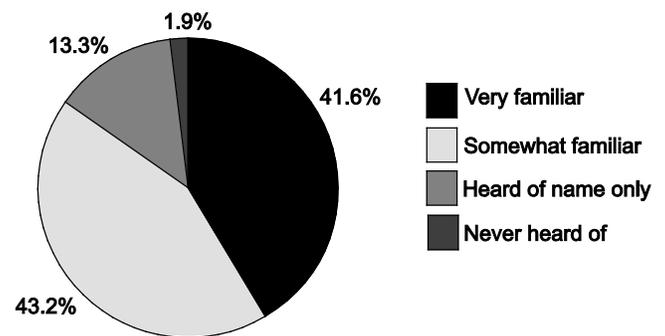
**Central:** Colorado, Idaho, Kansas, Montana, New Mexico, South Dakota, Texas, Utah, Wyoming

**East:** Iowa, Kentucky, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Virginia, Wisconsin

<sup>2</sup> There are many additional diseases of importance to sheep producers not covered in the Sheep 2011 study. These other diseases may also impact production and public health (e.g., zoonoses).

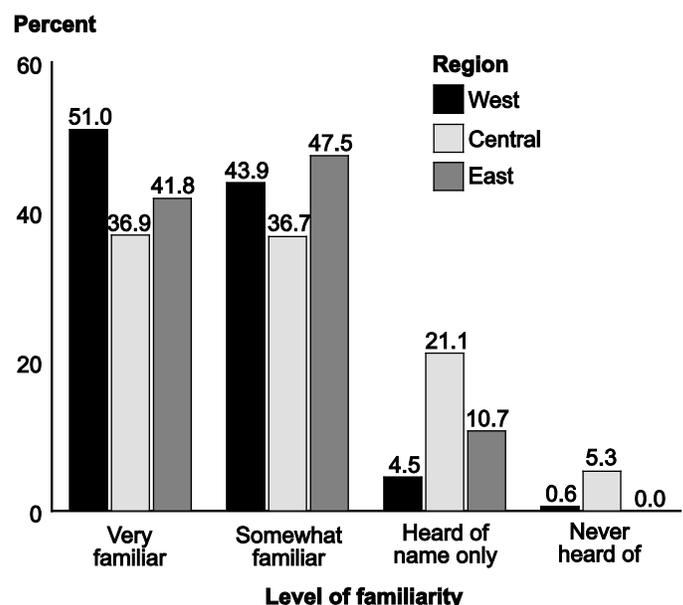
The majority of operations (84.8 percent) reported that they were very familiar or somewhat familiar with scrapie (fig. 1). Operations in the West region were the most familiar with scrapie, with 94.9 percent reporting that they were very familiar (51.0 percent) or somewhat familiar (43.9 percent) with the disease (fig. 2).

**Figure 1. Percentage of all operations by reported level of familiarity with scrapie**



Of the 84.8 percent of operations very or somewhat familiar with scrapie, nearly half (47.3 percent) implemented genetic selection to control scrapie in their flocks.

**Figure 2. Percentage of operations by familiarity with scrapie, and by region**



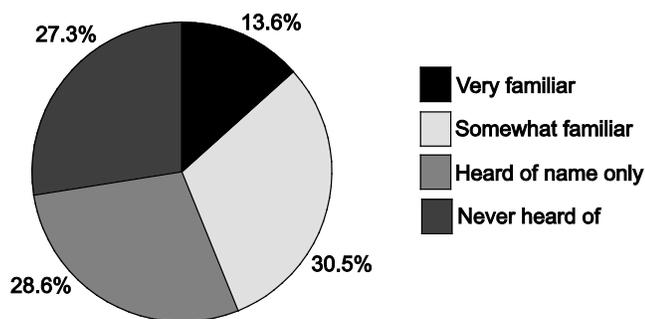
More information on scrapie can be found at: [http://www.aphis.usda.gov/animal\\_health/animal\\_diseases/scrapie/](http://www.aphis.usda.gov/animal_health/animal_diseases/scrapie/)

### Johne's disease

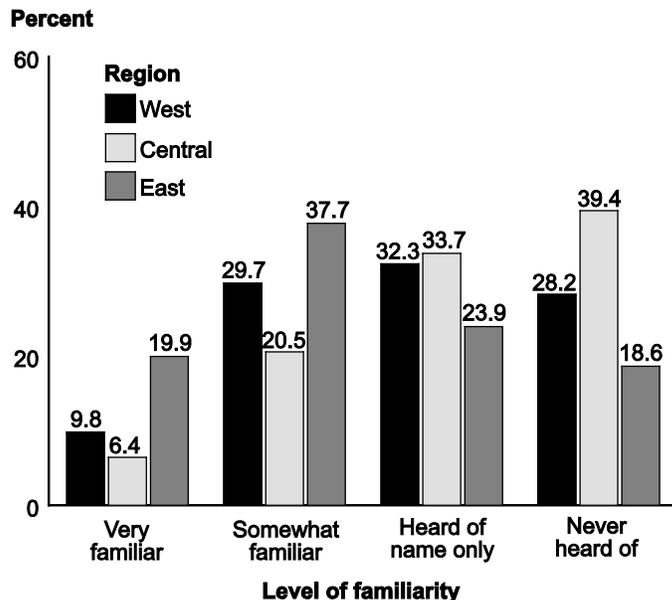
Johne's disease is a contagious, chronic, usually fatal infection that primarily affects the small intestines of ruminants. Found worldwide, Johne's disease is caused by the bacterium *Mycobacterium avium* subspecies *paratuberculosis*, which belongs to the same family as tuberculosis and leprosy. Some strains preferentially infect species of ruminants (e.g., only cattle or only sheep); however, some cross infections do occur.

Most sheep are infected when young and do not show clinical signs until 2 to 6 years of age. In sheep, the most common indication an animal is infected with Johne's disease is weight loss despite a normal appetite. Interestingly, despite the severity of the disease, over half the operations surveyed (55.9 percent) had either never heard of Johne's disease or had heard of the name only (fig. 3).

**Figure 3. Percentage of all operations by reported level of familiarity with Johne's disease**



**Figure 4. Percentage of operations by familiarity with Johne's disease, and by region**



Of operations very or somewhat familiar with Johne's disease, 8.8 percent had a flock health management program specifically to control the disease.

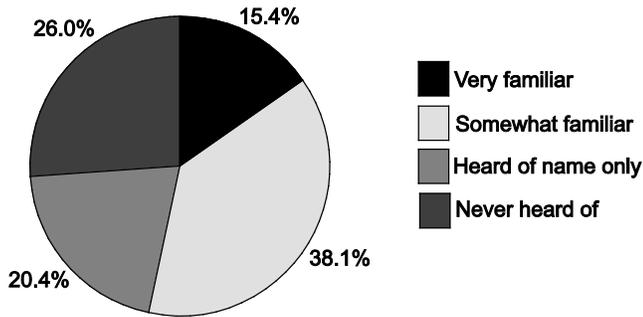
More information on Johne's disease can be found at: [http://www.aphis.usda.gov/publications/animal\\_health/](http://www.aphis.usda.gov/publications/animal_health/)

### Ovine progressive pneumonia

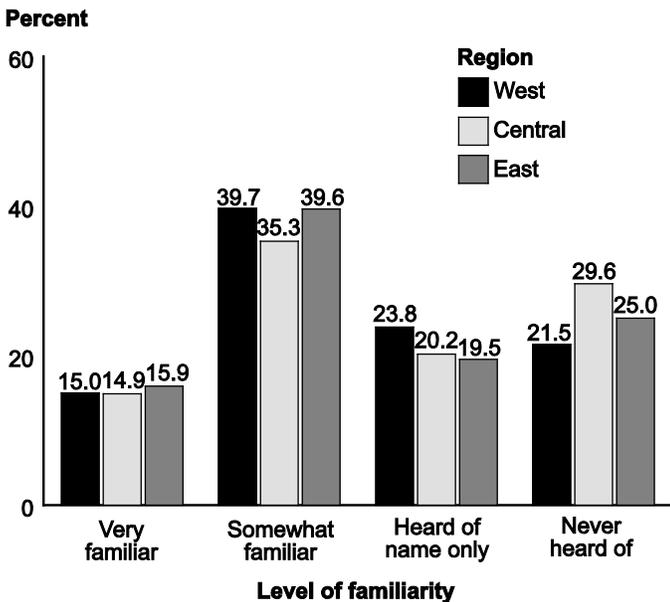
OPP is a slowly progressive, chronic viral disease of adult sheep caused by an ovine lentivirus. Most sheep never show clinical signs, and sheep that do typically do not display signs until 2 years of age or older. Common signs of OPP include increased breathing effort at rest, lagging behind the rest of the flock, progressive weight loss despite a normal appetite, and possibly hardbag syndrome, a noninflammatory mastitis. OPP is commonly passed from infected ewes to their lambs via colostrum and milk, or by inhalation of infected air droplets.

Once infected, animals remain infected for life. Flocks infected with OPP may have lowered production efficiency due to early culling, decreased milk production, and lower weaning weights. Half of all operations (53.5 percent) were either very familiar or somewhat familiar with OPP (fig. 5).

**Figure 5. Percentage of all operations by reported level of familiarity with ovine progressive pneumonia**



**Figure 6. Percentage of operations by familiarity with ovine progressive pneumonia, and by region**



For the 53.5 percent of operations that were very or somewhat familiar with OPP, 16.2 percent had a flock health management program specifically to control or prevent OPP. Nearly three-fourths of operations (72.7 percent) did not know their current OPP status while 18.7 percent reported never being infected with OPP, 5.4 percent indicated their flock was currently infected with OPP, and 3.3 percent indicated their flock was previously infected but was now OPP negative.

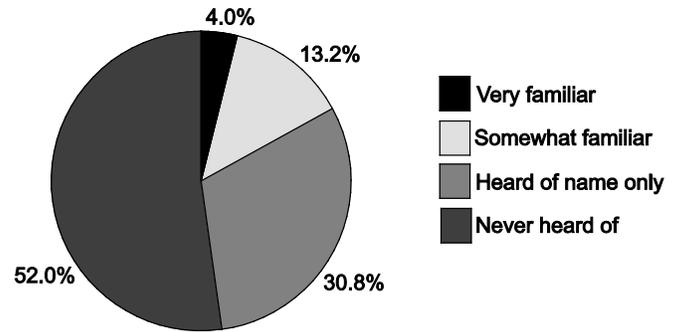
More information can be found at: <http://www.oppociety.org/Home.html>

### Q fever

Q fever is an infection caused by the intracellular gram-negative bacterium *Coxiella burnetii*, found worldwide (except in New Zealand). Also called

coxiellosis, the bacteria can infect a wide range of hosts, but the primary reservoirs are sheep, goats, and cattle. The disease is not generally considered problematic in animals, but it can cause abortion storms in sheep and goats and also poses a public health risk as it is zoonotic. When asked, the majority of sheep producers had never heard of Q fever or had heard of the name only (82.8 percent).

**Figure 7. Percentage of all operations by reported level of familiarity with Q fever**

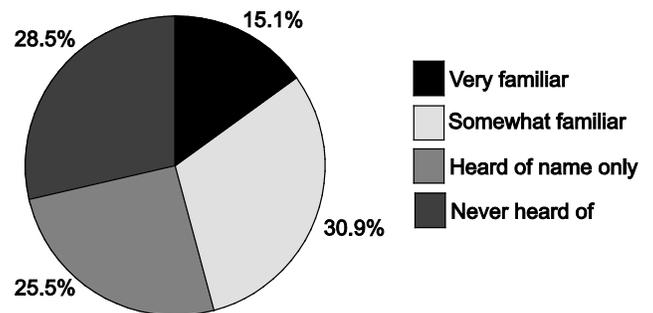


More information about Q fever in humans can be found on the CDC Web site: <http://www.cdc.gov/qfever/index.html>

### Toxoplasmosis

Toxoplasmosis in sheep is characterized by abortion storms in a flock. Toxoplasmosis, caused by infection with the protozoan parasite *Toxoplasma gondii*, is one of the most common parasitic infections of warm-blooded animals. Although more widely known for its infection of cats, *T. gondii* is found worldwide and its hosts include sheep and humans. Over half of the operations (54.0 percent) had either never heard of this zoonotic disease or had heard of the name only (fig. 8).

**Figure 8. Percentage of all operations by reported level of familiarity with toxoplasmosis**



More information on toxoplasmosis in humans is available at:  
<http://www.cdc.gov/parasites/toxoplasmosis/index.html>

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