



Animal Disease Lab Useful, Busy Place

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The University of Arizona Animal Pathology laboratory at Mesa, in the Salt River Valley, was established to provide diagnostic service to veterinarians and the livestock and poultry industries of central and northern Arizona.

Since it opened in 1957, many hundreds of disease conditions have been diagnosed at the laboratory. Among these are three new diseases to Arizona: *Salmonella dublin* infection, fowl spirochetosis, and canine piroplasmiasis (tick fever).

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collected from Johnson grass growing in and near sorghum fields.

Crop Loss Severe

An examination of several infested fields in the area revealed a loss in yield of 25 to 50 per cent. In areas where the midge is already established, birds, spiders and certain other insects are reported to be among its natural enemies. Ants, which include the Argentine ant and small fire ants, destroy many midges by swarming over the sorghum or grain heads and killing the pupae and newly hatched adults.

Three tiny parasites reportedly attack the larvae and pupae of the sorghum midge. One of these, a chalcid wasp, *Eupelmus popa* Gir, was apparently brought to the United States from India about 1909. In 1920 it was found near San Antonio, Texas, and is now widely distributed over Texas, Missouri, and Virginia. To date this parasite has not been found in California or Arizona.

The best known control of the sorghum midge reported in other areas where it is found is based largely upon cultural practices. Chemical control is difficult, inasmuch as the midge spends most of its life within the spikelet or developing seed. Before any insecticides can be recommended for control it will be necessary to try them under Arizona conditions.

CONFERRING in the new laboratory at Mesa are Dr. W. J. Pistor, left, head of the University's Department of Animal Pathology, and at right, Dr. Rokey, head of the Mesa laboratory. Diagnostic work for the public, such as described in this article, is also done at Tucson, by the same department.

The laboratory is assigned a dual responsibility of research and diagnostic service. It is staffed by five full time employees who answer diagnostic requests and have research activities.

Acts as State Agency

Normally, diagnostic services to livestock industries are furnished by state departments of agriculture. Since Arizona has no such agency, The University of Arizona has made this service available. No charge is made for these services.

The largest number of *Salmonella dublin* isolations in the United States has been made at the Mesa laboratory, according to United States Public Health authorities. The disease has been diagnosed in cattle, horses, sheep, swine, rabbits, dogs, mice, and has also been isolated from raw milk. The diagnoses of *Salmonella dublin* in horses, sheep, swine, rabbits, and dogs at the Mesa laboratory are the first con-

Recommend 10 Practices

Cultural practices appear to offer the best protection. The following cultural practices have been effective in other midge-infested areas.

1. **Control Johnson grass in or near sorghum fields. Johnson grass is not only a source of overwintering midges but also provides a reservoir of midges for late-planted sorghums.**
2. **Cultivate out or burn Johnson grass and other grain or forage sorghum refuse to destroy hibernating midges before they can emerge.**
3. **Plant sufficient seed to minimize tillering. Usually 6-8 lbs. of seed per acre on 32" to 40" rows is enough and will produce plants about 3" to 4" apart.**
4. **Plant as early as possible, April, May and June, especially with late-maturing varieties. This will reduce damage by the midges.**
5. **Use pure (certified) seed of a uniform blooming variety.**
6. **Pre-irrigate and prepare a good seedbed. Then cultivate the field to produce as uniform a crop as possible.**
7. **Plant upwind from any early-planted sorghum.**
8. **Plant in April, May or June when neighboring growers in the area are planting.**
9. **Avoid second growth in field; harvest grain as soon as mature.**
10. **Avoid cutting headed Johnson grass, Sudan grass or forage sorghums while grain sorghum is blooming because adult midges will emerge from cut plants and lay eggs in the grain sorghum.**

firmed reports of the disease in these animals in the United States.

Salmonella dublin is a potentially dangerous disease for both man and animals. It is particularly destructive to calves. In humans, *Salmonella dublin* may cause a disease similar to typhoid fever. Initial surveys indicate that the infection may already be wide-spread in Arizona dairy cattle.

Identify Fowl Disease

Fowl spirochetosis has been known for many years in foreign countries. It was identified in Arizona at the Mesa laboratory in 1959. Previously, it had been reported only in turkeys in California. Since 1959, fowl spirochetosis has been diagnosed in several other Arizona poultry flocks. Fowl spirochetosis is capable of causing extremely heavy losses in poultry.

Canine piroplasmiasis (tick fever of dogs) may be of particular interest to pet owners. Tick fever is an insidious disease in dogs and may be more wide-spread than is generally believed. It is believed to be carried by the common brown dog tick.

The laboratory provides services to all segments of the livestock and poultry industries. Each year, several hundred cases are processed at the laboratory. Since it began operation in July of 1957 some 37 per cent of all cases were cattle; 29 per cent poultry; 10 per cent horses; 4 per cent swine; 2 per cent sheep; and 18 per cent miscellaneous. Miscellaneous cases include feed, milk, wildlife, rabbits, pigeons, doves, etc.

Variance in Cases

A case may consist of one calf, 20 milk samples, or 10 chickens. Each case presented to the laboratory is assigned one accession number regardless of the number of animals or specimens involved. Many hundreds of laboratory tests may be necessary for an individual case. In 1960 a total of 11,717 separate laboratory tests were made. The tests included procedures of bacteriology, serology, necropsy, toxicology, parasitology, histopathology, and hematology. An additional 5,460 antibiotic drug sensitivity tests were made on bacteria isolated at the laboratory.

The number of accessions directly reflects the extent and prevalence of disease problems of livestock in the area serviced by the laboratory. During periods of low disease incidence, accessions may decrease while during the peak of disease epizootics, accessions may rapidly increase.

Also Do Research Work

In addition to diagnostic service work, the personnel are actively engaged in four research projects: "*Salmonella dublin* Infection in Animals"; "Etiology of Mortality of Baby Calves"; "Fowl Spirochetosis"; and "Canine Piroplasmiasis."