ENTOMOLOGY

Fool Female Screwworm

➤ THE SCREWWORM fly may be eradicated from Florida and controlled in Texas, where its maggots cause millions of dollars loss to livestock men each year, by fooling the females with sterile males as was recently accomplished on Curacao island in the West Indies.

Eradication of the cattle pest in Florida could cost less than the monetary loss caused by the insect in southeastern Florida for a single year, Dr. A. W. Lindquist, head of the U. S. Department of Agriculture's section of insects affecting man and animals, reported to the Entomological Society of America meeting at Tampa, Fla.

Dr. Lindquist's report on the possible eradication of the screwworm in the United States followed an announcement by the Department that scientists had successfully eradicated the insect from the Caribbean island of Curacao by sterilizing the males with atomic radiation and releasing them on the natural population. Female screwworm flies mate only once.

"At this time," Dr. Lindquist stated, "the obstacles are not insurmountable and given time and funds, this second phase of using sterile screwworms on a natural population should be successful."

Heretofore, large-scale application of this atomic-age insect control was not thought possible. The problem of reinfestation from other areas, as well as the herculean task of rearing, sterilizing and releasing the flies brought about the trial test on Curacao, which is a small, isolated island 50 miles from the nearest land.

Now, the government scientist pointed out, studies have shown that winter temperatures that are below average drive the screwworm into the southern two-thirds of Florida and this would be the opportune time to attempt a test eradication program on a larger scale than in Curacao.

The area affected during this winter freeze-back of the insects is approximately 50,000 square miles, or 300 times the size of the Dutch island. Dr. Lindquist suggested that an initial test on an area of 2,000 square miles in Florida would be practical after two more years that are needed to perfect presently used eradication methods.

He explained that researchers need a year or two more to study better methods of estimating the natural fly population and an improved and cheaper means of raising the sterile flies.

Eradication in Texas is held all but impossible as the flies can reinfest the area from Mexico. However, Dr. Lindquist stated that the sterile screwworm program might be utilized in Texas as a control measure to prevent further spread of the pest.

Science News Letter, January 29, 1955

PHYSICS

Russians Stick to Red Line

➤ THE RUSSIANS stick to their red line, even as the standard for the international meter.

At the International Conference on Weights and Measures held in Paris, Russian scientists stood firmly for basing the international meter on the red line of cadmium.

Scientists in the United States believe the Russians back this particular red line not only because of its color, but because of its historical significance. The red cadmium line was used by the late Albert Michelson in the 1880's in experiments measuring the speed of light.

Other lines being considered as the standard are krypton 84, xenon 136 and mercury 198. United States scientists back use of mercury 198 because of its simplicity.

All that is needed is a little tube filled with mercury 198, obtained in pure form by bombardment of gold in an atomic pile. The green mercury line glows when the tube is hit with waves of radio frequency.

Delegates to the conference deferred final judgment on which line to use for the international meter until their next meeting in 1960. In the meantime, physicists in each country will study the advantages and disadvantages of the four proposed lines, reporting their findings on the best method to the 1960 conference, which will also be held in Paris.

The ideal standard for the international meter would be one that is indestructible and would give exactly the same length for the meter at any laboratory in the world with the proper equipment. The apparatus needed for its determination should not be too bulky, expensive or hard to handle.

With it, any laboratory with the proper equipment could have a basic standard on the premises.

• RADIO

Saturday, Feb. 5, 1955, 5:00-5:15 p.m. EST

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. William Rieman III, professor of analytical chemistry at Rutgers, the State University of New Jersey, New Brunswick, N. J., will discuss "One Ion For Another," a discussion of new methods of chemical analysis, ion exchange and chromatography.

The present international meter, set up in 1875, is the distance between two scratches marked on a bar of platinum-iridium alloy kept in an air-conditioned vault at the International Bureau of Weights and Measures, Sevres, France. It was so constructed that at zero degrees Centigrade, which is 32 degrees Fahrenheit, its length is one ten-millionth of the earth's meridian quadrant at sea level.

The legal standard of length of the United States, maintained by the National Bureau of Standards, was directly compared to the international standard meter.

Mercury 198 is so called because it is an isotope of mercury having an atomic weight of 198. Ordinary mercury such as found in household thermometers has an atomic weight of 200.61.

Measurements based on the mercury 198 green light wave, which is 21-millionths of an inch long, will make possible length determinations precise to one part in 100,000,000.

One advantage of mercury 198 over cadmium is that it emits a more nearly perfect monochromatic light. This means that the red, green or other color used is a single wavelength rather than multiple wavelengths extremely close together.

Other advantages of mercury are that it does not need special heating equipment, and that the human eye is seven times more sensitive to green light than to red.

Xenon and krypton, two gases also being considered as the internationtal standard, have the advantage that wavelength readings can be taken at very low temperatures. This considerably cuts down "line broadening," which makes accurate readings difficult.

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