

Humans and livestock benefit from genetic breakthroughs

DENVER, Colo. — Livestock are the new guinea pigs for medical research using recombinant DNA and other genetic engineering techniques; but the animals stand to benefit as much as humans from recent breakthroughs.

"I think it is going to revolutionize the (livestock pharmaceutical) industry with new methods of immunizing animals against disease," said Dr. Dick Searl of the Ford Dodge

Laboratories.

Genetic engineering research has centered on livestock for several reasons, primarily because livestock today are normally crowded into close quarters, making them more susceptible to disease.

According to Dr. Robert Ellis, microbiologist at Colorado State University, "If cattle were still on the open range, they wouldn't have as many problems with anything,

especially not serious diarrhea. Confinement of any species does amplify problems that already exist."

Dr. Ellis, who is developing a vaccine against diarrhea caused by *E. coli* bacteria in livestock, believes that a vaccine against travellers' diarrhea in humans is now possible. "The research is a lot of work with a lot of problems, but it can be done with imagination and money," he said.

The recombinant DNA vaccine research focuses on individual proteins, called antigens, which are indirect culprits of viral and bacterial disease. In the case of *E. coli*, a few types of protein antigens must be present for the *E. coli* to attach itself to the intestinal wall and begin to multiply in the intestine.

Once the scientist has identified the antigens, he can duplicate them by cloning, or by isolating

and purifying them, for the vital ingredient in the vaccine. The vaccine stimulates the production of antibodies, which destroy the antigens and thereby prevent the multiplication of the bacteria.

Before genetic engineering, vaccines were made from a small amount of the attacking virus, which caused antibodies to form against that strain of virus. They have been very effective in preventing some viral diseases, such as measles, mumps and polio; but they are not specific enough for some viral strains and they are not effective against bacteria.

In addition to *E. coli* research, efforts to clone the important proteins in rabies virus are now underway. None of the genetically engineered vaccines now being developed are yet on the market.

Scientists at the US Dept. of Agriculture's Plant and Animal Protection Quarantine Center at Plum Island, N.Y., working with the private firm, Genentech, are reportedly very close to developing a vaccine for foot-and-mouth disease. Because the disease is one of the most vicious killers of many types of livestock, the virus strains are not allowed in the continental US, and research can only be conducted at the island laboratories.

Hutchinson talks mange control

UNIVERSITY PARK — Do you have some hogs that are scratching and rubbing; have skin that is cracked, sore, and tender? If even a few pigs in an otherwise healthy-looking pen show these signs, there is a good chance your pigs have mange, according to Lawrence Hutchinson, Extension

Veterinarian.

Hog mange is caused by white mites about 1/60th of an inch long. They burrow in the skin and suck body fluids. These mites also cause a skin irritation which is the cause of the itching and scratching. Mange mites lay small eggs which

hatch in 7 to 10 days into adult mites.

Although you may be able to diagnose mange just by looking at your pigs as sure way to confirm the diagnosis is to have your veterinarian examine a skin scraping under a microscope. A scraping from inside the ear is the best, says Dr. Hutchinson.

Control of hog mange requires regular dipping or spraying. Three effective products are malathion (Cythion) 57% EC or 25% WP, toxaphene 61% EC, and Co-Ral (coumaphos) 25% WP. Follow the label directions for mixing and use. These insecticides are effective against the adult mite, but not against the eggs so repeated treatments at one week intervals

will be necessary to completely rid your hogs of mange.

Remember that even one infected pig on the farm can be a source of spread to others. That means you should treat your hogs when the sows are treated. You should also treat purchased animals before they are added to your own stock.

One good time to treat mange suggests Dr. Hutchinson is before the sows enter the farrowing house. Even mild mange infestation in sows can be disastrous to baby pigs.

Hog mange is a profit-robbing and is present on many Pennsylvania farms. All it takes is a little time to remove those mange mites from your operation.

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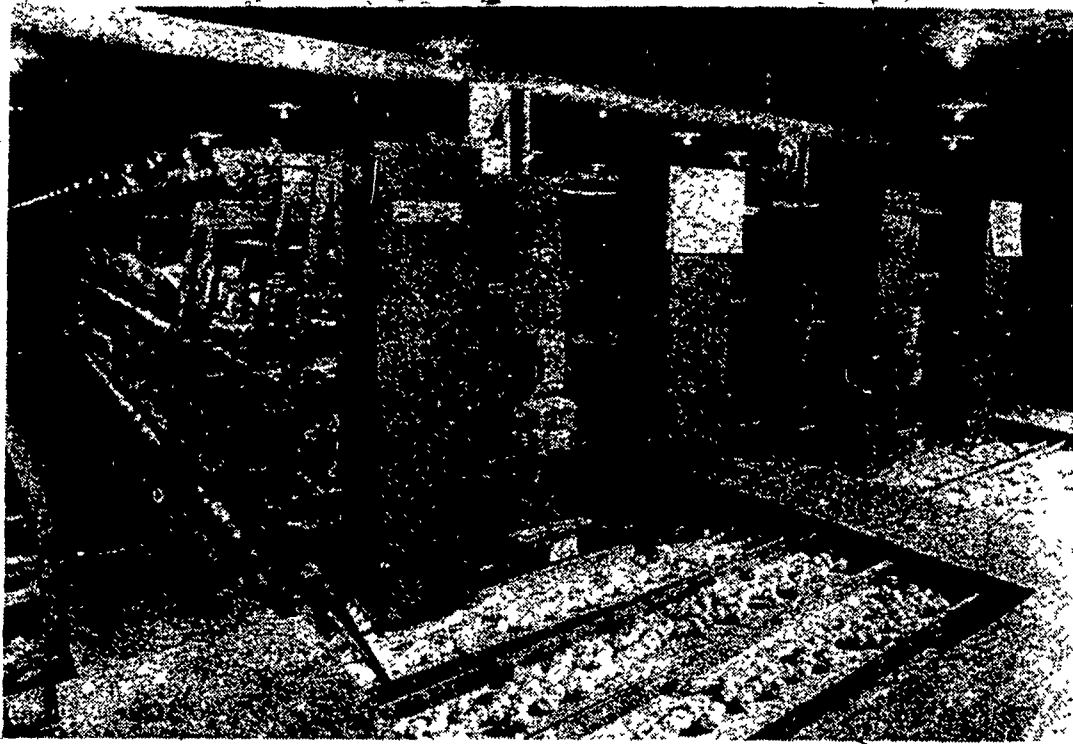
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