

Cement dust puts mysterious gain on cattle

WASHINGTON, D.C. — Georgia farmers who fed cement kiln dust to their cattle as a mineral supplement noticed such significant weight gains that the dust has become the subject of research by scientists of the U.S. Department of Agriculture.

In studies by scientists of USDA's Agricultural Research Service (ARS), steers fed a low-quality forage diet containing cement kiln dust not only gained weight faster but also ate less feed and produced higher-grading carcasses than steers on a control diet. Dust-fed steers graded an average of top choice; control steers averaged top good.

The ARS scientists at the Beltsville Agricultural Research Center, Beltsville, Md., do not know why cement kiln dust increases weight gains and they caution farmers against feeding cement kiln dust to

their cattle until further research can be done.

Cement kiln dust results from mixing and curing the ingredients used to make Portland cement - 99 per cent of all cement made in this country. The cement mixture is heated to 1500 degrees celsius and mixed; about 12 per cent is filtered out of the air as dust. Nearly 33,000 tons of dust are collected daily by Portland cement plants in this country. Only a small amount of the dust is recycled for making cement or used for agricultural liming.

Dr. William E. Wheeler, an ARS animal scientist, has several theories why the dust increases weight gains.

"The dust is high in minerals, particularly calcium (27 per cent)," he said. "It could be the mineral content of the dust; the high temperatures to which the dust is heated; or the fineness of the dust

about the consistency of face powder).

"The research does indicate that we have a long way to go in understanding the mineral requirements of livestock," Dr. Wheeler said. "Our control diet was formulated to satisfy all National Research Council (NRC) recommendations for growing-finishing steers, whereas the dust diet was not. Yet the cattle fed cement kiln dust had a 28 per cent faster rate of gain than those fed the control diet."

Dr. Wheeler and Dr. Robert R. Oltjen, now director of USDA's Meat Animal Research Center, Clay Center, Neb., became interested in the effects of cement kiln dust on cattle when they were contacted by three Georgia farmers. The farmers were liming their pastures and decided to add some of the high-calcium dust to the diet of overwintering steers. Although the steers were getting a nutritionally poor diet (50

per cent soybean straw and 50 per cent snapped corn), they gained almost 4 pounds per day when kiln dust was added to the diet.

"We talked with the farmers and obtained some of the cement kiln dust from Georgia," Dr. Wheeler said. "We knew the implications for beef production would be tremendous if cattle gained as well on controlled tests as they did on the farm."

Dr. Wheeler and Dr. Oltjen formulated two diets and fed them to two groups of seven steers weighing an average of 750 pounds. The control group received a diet consisting of 53 per cent hay, 34 per cent cracked corn and supplemental protein, minerals and salt, to meet NRC recommendations for growing-finishing steers. The dust-fed group received

the hay and corn plus 3.5 per cent cement kiln dust and no additional supplements. The control diet contained 12 per cent crude protein; the dust diet, 8 per cent.

Steers fed cement kiln dust gained .64 pound more per day during the 112-day study and required 21 per cent less feed per pound of gain than control steers. Dust-fed steers gained about 3 pounds per day; control steers, about 2.3 pounds per day.

"Tremendous amounts of cement kiln dust are produced not only in this country, but in many of the developing countries," Dr. Wheeler said. "This opens up new avenues of research that could lead to low-cost

production of quality beef." Additional research studies now underway at Beltsville indicate that the kiln dust increases gains not only in cattle but also in sheep.

Dr. Wheeler and Dr. Oltjen conducted gross studies of the liver, spleen, rumen, kidneys and heart of steers fed the control and dust diets. They found nothing abnormal in any of the organs; however, they said that studies must be done to determine whether or not residues from the dust accumulate in either edible tissues or organs of the animals. Cement kiln dust has not been approved by regulatory agencies as a feed additive.

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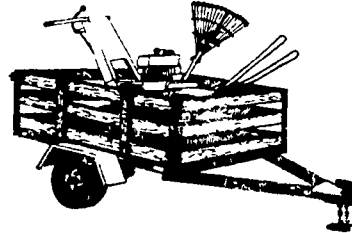
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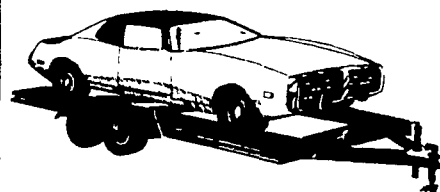
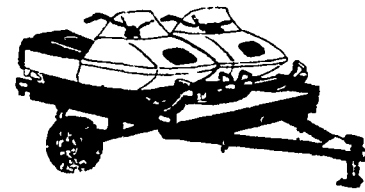
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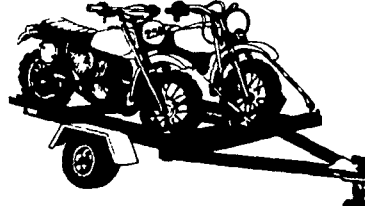
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