

Scientists link cattle cancer eye to solar activity

AMES, Ia. — If changes in the ozone layer surrounding the earth should increase ultraviolet radiation, more cases of cancer eye in susceptible cattle and more severe episodes of the disease could be expected.

Research here at the National Animal Disease Center supporting this conclusion also strengthens the belief of scientists that exposure of such cattle to ultraviolet-beta radiation may induce the disease, also known as bovine ocular squamous carcinoma or epithelioma.

A team of Science and Education Administration scientists produced anatomic changes and lesions typical of early cancer eye in susceptible cattle by exposing the cattle to controlled doses of ultraviolet-beta radiation from sun lamps.

The researchers also suggest an

association between solar activity and numbers of cattle condemned because of cancer eye at USDA-inspected slaughter plants between 1950 and 1976.

Cancer eye has been reported in almost every breed of cattle, but most frequently in Herefords. Within the Hereford breed, cattle lacking any pigment around and in the eye — a genetically controlled trait — are most susceptible.

Herefords lacking pigment around the eyes, from a line with a history of cancer eye, were used in the study by veterinary medical officers Kenneth E. Kopecky, George W. Pugh, Jr., David E. Hughes, and Norman F. Cheville, and statistician Gordon D. Booth.

For 22 months, first for 7 minutes daily and then for periods gradually increasing to 180 minutes daily, the cattle were stanchioned facing ultraviolet-beta

radiation from FS-40 lamps. During the total exposure of 1,500 hours, the lamps were filtered to absorb wavelengths below 285 nanometers, so that the radiation resembled natural ultraviolet-beta radiation.

Three of the four animals exposed to ultraviolet radiation developed lesions typical of early stages of cancer eye. The fourth animal had deep-set eyes under a prominent crest, which apparently protected its eyes. The scientists ruled out pinkeye and cytopathic herpesvirus infection as probable causes of damage to the animals' eyes.

A 1950-76 survey of condemnations for cancer eye by

federal meat inspectors also shows indirect evidence linking cattle exposure to ultraviolet-beta radiation with development of this disease, according to Kopecky.

Taking into account the annual increase in number of cattle slaughtered, the researchers found that the percentage of annual condemnations for cancer eye doubled over the 16-year period. Greater awareness of the disease by inspectors of what is now USDA's Food Quality and Safety Service may have been a factor in this increase. But Kopecky believes the incidence of the disease also rose.

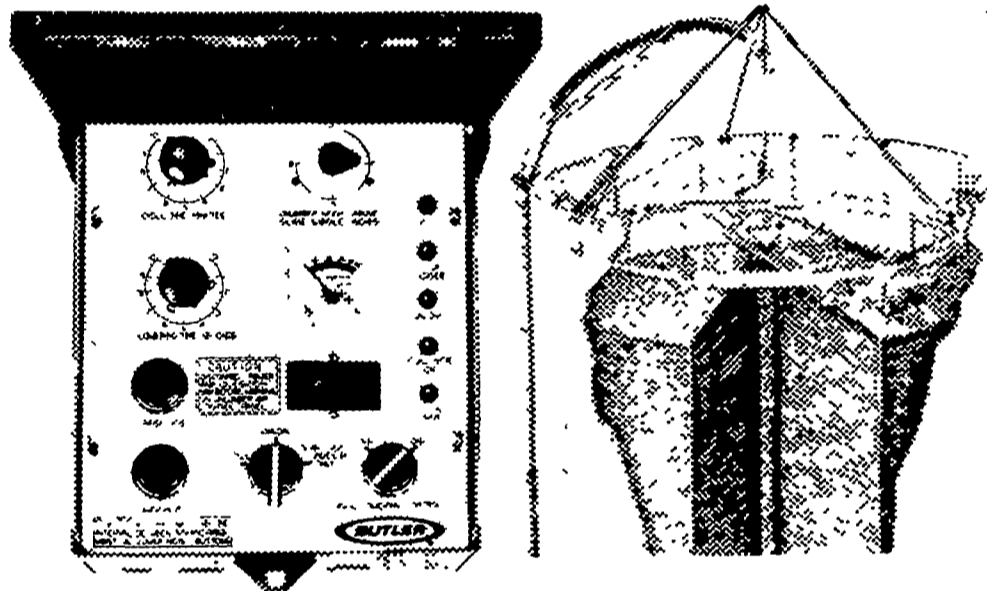
The researchers plotted annual condemnations, adjusted for

numbers slaughtered, on a graph. Then they plotted solar activity — shifting solar activity forward 5 years on the graph to account for apparent delay in development of cancer eye after exposure. Annual cancer eye condemnations and annual solar activity both peaked on the graph near the same times — about 1960-62 and again about 1970-74.

The Environmental Protection Agency partially funded this study.



Big Jim[®] super silage handler by JAMESWAY[®]



Why climb?

New Fill-N-Feed[®] Ground Level Change-Over (optional) for the Big Jim silage system lets you switch from fill to feed and back again, simply by setting a control at ground level. Indicator lights show you what's happening in the silo. Feature adds ease and flexibility while the system evenly packs in more silage; feeds out fast.

See us for systems and service that help make the good life better.

AGRI EQUIPMENT INC.
2754 Creek Hill Rd.
Leola, PA 17540
717-656-4151

I. G. SALES
Rt. 113, Box 200
Silverdale, PA
215-257-5135

G. HIRAM BUCHMAN, INC.
Rte. 519 - N. off Rte. 46
P.O. Box 185
Belvidere, NJ 07823
201-475-2185

GEORGE A. COLEMAN
Rt. #2, Box 216
Elmer, NJ
609-358-8528

DEPENDABLE MOTORS
Honey Brook, PA
215-273-3131
215-273-3737

HENRY S. LAPP
RD1, Cains, Gap, PA 17527
717-442-8134

HARRY L. TROOP
Rt. 1 Cochranville, PA 19330
215-593-6731

ERB & HENRY EQUIP., INC.
22-26 Henry Avenue
New Berlinville, PA
215-367-2169

BENNETT MACHINE CO.
1601 S. Dupont Blvd.
Milford, DE
302-422-4837

ROVENDALE SUPPLY
RD 2, Watsontown, PA 17777
717-538-5521

SOLLENBERGER SILOS
RFD 2, Chambersburg, PA
717-264-9588

J. A. SWOPE
Box 121, RD1
Myerstown, PA
717-933-4758

DETWILER SILO REPAIR
Rt. 2, Newville, PA
717-776-7533

CHALLENGE #2

Whose Power Shift delivers the most performance in over-100hp 2WD tractors?



Allis-Chalmers. It's the only 12-speed Power Shift with 6 continuous on-the-go shifts.

Proven in tests to deliver the most at the clutching or stopping. Take the challenge. Compare feature for feature. You'll discover why our line and your Allis-Chalmers dealer are better by design.

Proven in tests to deliver the most at the clutching or stopping. Take the challenge. Compare feature for feature. You'll discover why our line and your Allis-Chalmers dealer are better by design.

Better by Design
ALLIS-CHALMERS

New 3 year tractor service policy now available. See us for details.

ROY H. BUCH, INC.
Ephrata, RD 2, PA
717-859-2441

WERTZ GARAGE
Lineboro, MD
301-374-2672

AGRONOMICS INC.
Box 64, R.D. 2
Factoryville, PA
717-945-3933

PAUL DOTTERER FARM EQUIPMENT
R.D. 2, Mill Hall, PA
717-726-3471

NICHOLS FARM EQUIPMENT
R.D. 1 Bloomsburg, PA
717-784-7731

MARSHALL MACHINERY
R.D. 4, Honesdale, PA
717-729-7117

L. H. BRUBAKER, INC.
Lancaster, PA
717-397-5179

C.J. WONSIDLER BROS.
RD1, Quakertown, PA
215-536-1935
215-536-7523

AG. IND. EQUIPMENT CO., INC.,
1207 Telegraph Rd
Rising Sun, MD
301-658-5568
301-398-6132
215-869-3542

PETERMAN FARM EQUIPMENT, INC.
225 York Road
Carlisle, PA
717-249-5338

SHARTLESVILLE FARM SERVICE
Hamburg, PA
215-488-1025
H. Daniel Wenger, Prop.

MECKLEY'S LIMESTONE PRODUCTS INC.
R.D. 1 Herndon, PA
717-758-3915

C. J. WONSIDLER BROS.
Rt. 309 & 100
R2 New Tripoli, PA
215-767-7611

B. EQUIP., INC.
8422 Wayne Hwy
Waynesboro, PA
717-762-3193

GRUMELLI FARM SERVICE
Quarryville, PA
717-786-7318

BHM FARM EQUIPMENT, INC.
Annville, RD1, PA
717-867-2211

C.J. WONSIDLER BROS.
RD 2, Oley, PA
215-987-6257

B & R FARM EQUIPMENT, INC.
R.D. 1, Box 217A
Beavertown, PA
717-658-7024

AIRVILLE EQUIPMENT, INC.
P.O. Box 37,
Airville, PA
717-862-3358