

Kentucky FARM AND HOME *Science*

Issued quarterly by the Kentucky Agricultural Experiment Station

Volume 5

Number 4

Fall 1959



READ—

**Cribbing or
Windsucking in
Thoroughbreds**

**Dairy Cattle
Feeding**

**Use of Dairy
Products**

**Kentucky
Research Results
In Brief**

Kentucky FARM AND HOME Science

Vol. 5, No. 4 Fall 1959

A report of progress published quarterly by the Kentucky Agricultural Experiment Station, University of Kentucky, Lexington

KENTUCKY AGRICULTURAL EXPERIMENT STATION
FRANK J. WELCHDirector
WILLIAM A. SEAYVice Director
W. P. GARRIGUSAssociate Director
J. ALLAN SMITHAgricultural Editor

Material appearing in this publication may be reproduced without further permission, provided that full acknowledgment is made of the source and that no change in headings or text is made without approval by the author.

Kentucky Farm and Home Science

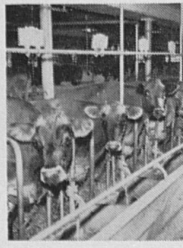
JOSEPH G. DUNCANEditor
LOUISE F. BOSWELL Assistant Editor
ROBERT C. MAY Photographer

Address correspondence about articles in this publication to either the authors or the Department of Public Information and Educational Aids, Experiment Station Building, University of Kentucky, Lexington.

In This Issue

CRIBBING OR WINDSUCKING IN THOROUGHBREDS <i>By Dewey G. Steele</i>	Page 3
POOR QUALITY HAY OR CONCENTRATES DRIES UP DAIRY COWS <i>By Don R. Jacobson, J. P. Bates, Jr., and W. M. Miller</i>	Page 4
USE OF DAIRY PRODUCTS BY KENTUCKIANS <i>By John B. Roberts</i>	Page 5
KENTUCKY RESEARCH RESULTS IN BRIEF <i>By Frank B. Borries, Jr.</i>	Page 6

The Cover



These Jersey cows, waiting to be fed their experimental rations, are part of the Experiment Station herd at the Dairy Center. Both Holstein and Jersey cows are used in research to determine more efficient methods of producing milk and in teaching classes. Current research includes studies on improved reproductive efficiency, nutritive evaluation of pastures, supplemental feeding with pasture, and basic studies on the rumen. In this issue of Kentucky Farm and Home Science see "Poor Quality Hay or Concentrate Dries Up Dairy Cows." (Photo by Robert C. May.)

Cribbing or Windsucking in Thoroughbreds

By DEWEY G. STEELE
Genetics Section

The faithful horse has left the farm, but he is not forgotten. Individual horses are remembered something like people, for their most distinguishing characteristics. Who can forget a vicious horse or one that jumped fences? The same is true of a stump-sucker whose teeth left their mark on every manger and wooden structure within grasping distance. Even blueblooded Thoroughbreds have their full share of stumpsuckers, usually designated as cribbers or wind-suckers.

Typically, a cribber grasps or presses the incisor teeth upon some wooden object, then pulls back, during which time the neck arches and the entire musculature shows great tenseness; then a repulsive grunt is emitted. Exceptional cases may even crib on a front foot, a rider's boot or an unsuspecting bystander.

When cribbing is associated with excessive swallowing of air, it is highly objectionable, especially in racehorses. To prevent this, it is common practice to apply a cribbing strap around the upper part of the neck. A muzzle may also be used for the same purpose. Electric wires, creosote and a host of other foul substances have been applied to mangers and fences. All of these discourage the completion of the chain of cribbing movements but they do not qualify as cures. A confirmed cribber seldom quits the vice, and for persistence in its repetition a cribber has no equal. Seemingly, some horses would rather crib than eat; such go down in flesh as a result.

Horsemen commonly blame cribbing on the boredom of confinement, teething troubles, accidents, and running with known cribbers. That a cribbing mare teaches her foal to crib is a popular belief but the science of animal behavior lends no support to that belief. Heredity also clamors for attention.

In order to check hereditary implications, over 600 cases of cribbing were assembled from records of the Breeders' Sales Company of Lexington, Ky., and

Geneticist studies over 600 cases of cribbing Thoroughbreds; more than half had one or both parents that were cribbers



A cribber at work. Note the damage being done to the top rail of the fence.

through interviews with horsemen (see table). On the basis of 217 cribbers, both of whose parents could be identified, the origin of cribbers seems to be approximately as follows:

- (1) about 10% from matings of cribber x cribber,
- (2) about 45% from matings of cribber x normal, and
- (3) about 45% from matings of normal x normal

PARENTAGE OF 629 CRIBBING THOROUGHBREDS

Sire	Dam	No. Cribbers	Total
Cribber	Cribber	19	
Cribber	Normal	57	
Normal	Normal	98	217
Cribber	Unknown	48	
Unknown	Cribber	12	
Normal	Unknown	130	
Unknown	Normal	21	
Unknown	Unknown	201	412
Total			629

(Continued on Page 8)



These four cows and the four rations (hay and grain) represent the four groups of experimental cows and their rations used in an experiment conducted this year. It was shown that feeding good alfalfa hay and good concentrate at the normal rate (extreme left above) was more profitable than feeding poor hay and any level of concentrate. Feeding

poor hay and twice as much concentrate as recommended (extreme right above) was more profitable than feeding lower levels of concentrate because milk production was maintained. The actual values are given in the table at the bottom of the page.

Poor Quality Hay or Concentrate Dries Up Dairy Cows

By DON R. JACOBSON, J. P. BATES, JR., and W. M. MILLER
Section of Dairy

Of course a dairyman can't afford to feed a ration that keeps his cows from producing at a level somewhere near their inherited capacity. This is because efficiency—and profitability even more so—drops rapidly as the level of milk production per cow drops.

In two experiments it was shown that either poor quality concentrate or poor quality hay fed according to present-day T.D.N. (total digestible nutrient) standards leads to a marked decline in milk production.

In both experiments, 24 similar cows of the Holstein

and Jersey breeds that had passed their peaks in lactation were divided into four equal groups and offered four different experimental rations (see table).

The "good" concentrate mixture was basically 2 parts corn and cob meal and 1 part oats along with minerals. This concentrate was rendered "poor" quality by including 40 percent poor quality ground hay in the mixture. The good quality hay was comparable to U. S. grade No. 2 leafy alfalfa. The poor

(Continued on Page 8)

EXPERIMENTAL RATIONS AND RESULTS

	84-day Experiment 1 (1958)				112-day Experiment 2 (1959) ¹			
	Group				Group			
	1	2	3	4	1	2	3	4
Roughage quality	good	good	poor	poor	good	poor	poor	poor
Concentrate quality	good	poor	good	poor	good	good	good	good
Level of concentrate fed	normal	normal	normal	normal	normal	normal	150% of normal	200% of normal
Preliminary M.P. ² (lb/day)	42.5	44.7	46.4	43.6	36.7	36.3	36.5	36.4
Final M.P. (lb/day)	36.1	28.8	19.1	13.7	26.4	14.1	20.7	32.7
Drop in M.P. (%)	15.1	35.6	58.8	68.6	28.1	61.2	43.3	10.2
Weight change (lb/day)	0.0	-0.6	-1.2	-1.4	-0.3	-1.0	-0.3	0.4
Hay consumption (lb/day)	33.3	28.4	17.9	13.7	31.0	13.7	12.1	6.6
(fed <i>ad lib</i>)								
Conc. consumption (lb/day)	13.9	13.0	13.2	11.9	7.7	10.8	18.0	28.9
Return above feed cost per cow, last 28-day pd.	27.47	23.07	16.84	11.26	16.01	8.53	10.23	13.53

¹ Prices employed were: good hay \$30/T, poor hay \$20/T, good conc. \$70/T, milk \$4.75/cwt 4% FCM.

² Milk production.

Findings from a survey of the food buying and milk consumption habits of 527 Lexington and Paducah families reveal

Use of Dairy Products by Kentuckians

By JOHN B. ROBERTS
Department of Agricultural Economics

It is a fact that people in seven other nations use more milk per person than do Americans; also, many Kentuckians do not get enough milk to meet the minimum nutritional standards.¹

Some individuals use little or no milk, but milk is important in the food budget and is used almost universally by Kentucky families. This was shown in a study of 527 Lexington and Paducah families in respect to their food buying and milk consumption. The families ranged in size from 2 to 9 persons, the average being 3.5. Families with the lowest incomes spent 60 to 70 percent of their incomes for food, whereas those having the highest incomes spent 9 to 13 percent. The average was 23 percent. Some families spent as little as 10 cents per person per meal, and others spent over a dollar a meal. The average cost of a meal for the white families was 35 cents and for the negro families 27 cents. Food cost an average of \$22 per week. About 20 percent of the money spent for food used at home was for milk and other dairy products.

Consumption of Milk and Dairy Products

The white families used daily on the average, 0.88 pint and negroes 0.45 pint of fresh milk per person. In making the choice between dairy products, income per person was a better index of what the family would buy than was race. As the incomes increased from the lowest to the highest levels the amounts of fresh fluid milk, cottage cheese, ice cream, sweet cream, and cheese went up. Families with low income did not use so much of most products. The use of buttermilk, evaporated and dried milk increased as the per-capita income went down. The amount of milk required to supply all of the dairy products used by Kentucky families was 1.15 quarts less per family per week than that for the United States. It was 1.43 quarts more, however, than that required for all families in the South.

¹ John B. Roberts, "The Consumption of Milk and Dairy Products in Kentucky Markets," Kentucky Agricultural Experiment Station Bulletin 660, June 1958.

Who Drinks Milk

The figures for individual family members show that some of the younger people and many adults did not drink enough milk. Milk was liked by more than 95 percent of all families contacted, but the amounts drunk by the individual family member was often not enough.² The family members who were between the ages of 6 and 19 drank the most milk

(Continued on Page 8)

² "Rural Family Living," Home Economics Research Branch, Agricultural Research Service, USDA, March 1955, p. 10. The recommended amounts were as follows: Children, 1-9 years, 5 quarts per week; boys, 10-12 years, 6 quarts per week; 13-20 years, 6.5 quarts; girls, 10-20 years, 6 quarts; adult women, 3.5 quarts; nursing mothers, 10 quarts; and adult men, 3.5 quarts per week.



About 20 percent of the money spent for food used at home by 527 Lexington and Paducah families was for milk and other dairy products. Having more facts on why individuals make particular choices will help make more effective dairy promotion efforts.

Kentucky Research Results in Brief

By FRANK B. BORRIES, JR.

USE OF FAN AND MIST-NOZZLES INCREASES LETTUCE YIELDS



Horticulturist Emmert inspects equipment used to circulate heat and air and to keep the relative humidity constant in a plastic greenhouse. Note the baffle plate which deflects the forced air downward.

Growing lettuce in a plastic greenhouse where heat and air were circulated by a fan, and where mist-nozzles kept the humidity constant, was very profitable in a one-year test.

In fact, says E. M. Emmert, horticulture staff member, in charge of the project, the device was apparently responsible for doubled yields. Diseases, always a problem in greenhouse production of lettuce where the relative humidity is high, were non-existent.

Emmert's commercial device consisted of several mist-nozzles arranged about a central water line.

Under them, suspended so as to blow air directly upward, was a large fan. The air hit a baffle plate which deflected it downward.

When the relative humidity dropped in the greenhouse, the nozzles automatically cut in; the fan circulated the fine mist released. Another fan circulated heat from a centrally located gas burner.

Emmert said he expected "lots of trouble" from diseases when the relative humidity was kept at a high level (90-100 percent) but none developed. He does not know why, but surmises that constant circulation of the air may have something to do with it.

The lettuce grown in the high-humidity house was compared with lettuce grown at the same time in a standard glass greenhouse under ordinary heat,



Note the difference in the size of the lettuce (above), which was grown in the high-humidity plastic greenhouse, compared with that (left) which was grown in a conventional glass greenhouse.

air circulation, and humidity conditions. The high-humidity-house lettuce was twice the size of the standard glass greenhouse lettuce, though Emmert says the test was not accepted completely since the glass greenhouse was a little warmer generally than lettuce needs for good growth.

COMPLETE SUPPLEMENT LIKED IN SWINE-GRAZING TESTS

A complete supplement given to test pigs in alfalfa-pasture test probably was the best combination from several standpoints. C. E. Barnhart (Animal Industry Section), releasing results of three years' trials, said the supplement cost less than other mixtures, produced as much gain, and required less feed per 100 pounds of gain. An antibiotic had been mixed with it.

The other supplements included a 50-50 supplement (meat scraps, soybean oil meal and an antibiotic); a soybean meal, limestone and antibiotic mix; and a complete ration mix composed of ground yellow corn with a complete supplement.

The favorite supplement required 310.88 pounds per 100 pounds of gain and cost about \$8.74 per 100 pounds of gain. The other supplements used did not vary greatly from the best in feed needed per 100 pounds of gain, but costs (per 100 pounds gain) ran from \$9.03 to \$10.86 for the complete mix, the highest.

The higher-costing complete mix (\$10.86) induced somewhat faster gains than the other supplements, but Barnhart believes the higher cost may deter producers. He also noted that the simple soybean-limestone supplement was almost as good as the complete supplement; but that the meat scrap supplement was varied in quality, cost more, and did not do so significantly better than the lower-costing ones.

SPRING NITROGEN APPLICATION MAY BE MOST USEFUL ON WHEAT

A spring application of nitrogen to wheat may be the best answer to nitrogen fertilization of such grain crops.

The reason, according to E. C. Doll (Agronomy Department):

In tests checking value of such applications—one conducted two years at Campbellsville and one for a single year at Greenville—the spring application produced more wheat than those plots which got nitrogen in the fall only. Doll said it also appeared the best rate was 40 pounds available nitrogen (about 120 pounds of ammonium nitrate). The 80-pound (available) application did not do any better than the 40, and the "zero" application, of course, was far be-

hind—about 10 bushels an acre. (The present research hasn't gone long enough for recommendations to be made.)

Doll believes the effectiveness of the fall application will depend largely on the amount of growth the new wheat crop makes in the fall and the amount of winter rainfall. A small amount of nitrogen in the fall definitely will help the newly planted wheat get established, but a spring application probably will have a better effect on wheat yields.

SHEARING BEFORE BREEDING MAY HELP CERTAIN EWES

Shearing prior to breeding may be beneficial to promote earlier breeding for only certain types of ewes, believes P. G. Woolfolk (Animal Industry Section), who says that the test's results were varied—and perhaps puzzling.

For instance: Shearing Montana ewes prior to breeding resulted in a two-week-earlier average lambing date. But shearing Texas ewes was of no benefit. And, he added, additional shearing (such as practiced in the experiment) did not result in higher wool clips for either group.

Another result of the experiment, tried the first time this year and to be repeated again, was that the Texas ewes lambed earlier than the Montana ewes—but produced approximately 9 percent fewer lambs.

Use of Dairy Products

(Continued from Page 5)

per person. White children averaged 1.2 pints per day and negroes 0.61 pints. While the data show high level consumption for teen-age groups, a more detailed study indicates that consumption rates dropped off rapidly in the late teens, especially among the girls. The low point for all persons sampled was for the age grouping from 30 to 39, although milk drinking remains relatively low for all adults. Generally, the lower rates of consumption were consistent with the expressed beliefs of respondents that adults needed less milk than children and teen-agers.

Adult Milk Drinking

When asked about their own milk drinking, fewer than half of the husbands and about one-third of the wives among the white families drank milk most every day. Among the negroes only one out of four (25 percent) of both the husbands and wives drank milk nearly every day. Thirty-one percent of the

(Continued on Page 8)

Use of Dairy Products

(Continued from Page 7)

negro wives and 20 percent of the white wives reported they never drank milk. Whatever the reason, clearly the question of use and nonuse among the adults is a major consideration in the over-all market for milk. If nonuse among adults encourages nonuse among children, then this becomes particularly significant as youth approaches adulthood and copies the eating habits of the adults.

One might conclude that it's nice to have the children around to help solve the surplus dairy problem, but the fact is many adults do not now use as much milk and dairy products as they could and perhaps should. To attack this problem, the dairy industry needs to have more facts about consumers and what they buy. We need to know more about why individuals make particular choices. Once this is understood, education and dairy promotion efforts can be more effective, and thus the problem of overabundance may become less acute.

Poor Quality Hay or Concentrate

(Continued from Page 4)

quality hay was a mature, weathered orchard grass, bluegrass, timothy mixture.

All rations were calculated to supply adequately the protein requirements of all animals. All animals were fed individually both hay and grain. Grain was fed according to milk production, butterfat tests, and body weights.¹

Results

In the first experiment, the results (see table) show that feeding poor hay led to a drastic drop in milk production. The adverse effect of feeding poor hay was much greater than that of feeding poor concentrate. The cows consuming the poor concentrate consumed less of either the good or poor hay. The T.D.N.

¹ In accordance with table 8 in Morrison's *Feeds and Feeding*, 22nd edition.

fed exceeded the T.D.N. required by 3 to 6 pounds in all groups, illustrating that the T.D.N. feeding standards far over-rate poor roughage when fed for milk production.

In the second experiment (see table), more than 150 percent of the recommended grain level was required to maintain milk production at a satisfactory level when poor hay was offered free choice. Feeding 200 percent of the recommended grain level gave a higher level of milk production than any other group. However, this practice was not so profitable as feeding good hay and the recommended level of grain, but it was considerably more profitable than feeding less grain and poor hay. Note in the table the low consumption of poor hay, especially by the cows that received the higher levels of grain.

Cribbing or Windsucking

(Continued from Page 3)

Because cribbers constitute only about 5 to 10 percent of mature Thoroughbreds, it is especially interesting that more than half of the cribbers had one or both parents that cribbed. In several cases cribbing could be traced continuously for 2, 3, 4 and even 5 generations. Also, were several repeat matings which produced cribbers. These and other facts point to some hereditary basis of cribbing. A Japanese investigator was actually the first to provide an hereditary interpretation of the vice. He concluded that cribbing was on the recessive order. It is more complicated than a simple recessive because some normals are known to have been produced by cribbing parents.

There is very little breeding selection against cribbing, and for that reason its frequency in Thoroughbreds may be expected to remain fairly constant in future generations. There is, however, some discrimination against cribbers in the transactions within the industry. There is no evidence that it interferes with racing performance.

Kentucky Agricultural Experiment Station
University of Kentucky
Lexington, Ky.

Frank J. Walsh
Director

FREE—Annual Report or Bulletin
or Report of Progress

Permit No. 1109
Ky. W-11-59-3,000

POSTMASTER: Please return free if
unclaimed. See Postal Laws and Reg-

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, \$300