

New York Agricultural Experiment Station.

(These series of frequent reports are intended to inform the public of progress at the Station rather than to give complete results.)

BULLETIN NO. IX—NEW SERIES.

N. Y. AGRICULTURAL EXPERIMENT STATION, {
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WAS IT POISON, OR OVERFEEDING ?

On January 27 we received at the laboratory a package of feed from Orange county, N. Y., with the following endorsement: "I send you this package of feed which I have reason to believe contains poison of some kind as two of my cows have died as well as some others that have eaten of the same kind." In a later communication we learn that the amount fed was four quarts of this feed mixed with two quarts of wheat middlings and corn cob meal, making six quarts at one feeding, and this quantity was fed twice in one day, morning and evening. "The first symptoms shown by the cows were refusal to eat, standing with their heads up and somewhat wild appearance. This lasted for twelve hours and then the animals dropped as if in a spasm and from that time until their death the pains were of the most violent kind, struggling and throwing their heads backward. * * * * *

There are three or four cases outside of my own dairy where cows have died in nearly the same manner as mine." In a later letter we were informed "that cows in full milk seemed to be the most affected. Also that Dr. Sutcliffe a veterinary surgeon made an examination of the stomachs after death. The third or maniplies seemed to be inflamed and impacted but the other was not so bad although the cow died in as

great agony as the other. Doctor said he believed the gluten was the cause as other cows that he had attended and had died were similarly affected and fed of the same feed."

This is all the information that has been given us in regard to this food, except the name of the manufacturer and other information which is not specially important in this connection. Suffice it to say that this feed is one of the refuse materials of a starch factory and belongs to the class of feeds usually known as "gluten meal," but it contains rather more skins of the corn kernel intermixed than is usually to be found in some commercial "gluten meal." A chemical analysis gave us the following as its composition :

	IN A NATURAL CONDITION.	WATER FREE.
Moisture.....	9.59	
Albuminoid.....	21.92	24.25
Crude fiber.....	5.54	6.13
Nitrogen-free extract.....	51.77	57.13
Fat.....	10.33	11.54
Ash.....	.85	.95

Acting upon the suggestion that poison was contained in this food, a very careful examination was made for ptomaines, the poisonous alkaloids which are sometimes formed in nitrogenous material as the result of decomposition, but no traces of these were found,* and we became thoroughly satisfied that the ill effects from the feeding could not have been derived from any poison present in our sample. As the ill effects ascribed to the feeding of these substances could not have been derived from poisons we are led to the supposition that injudicious feeding was the cause, and this view receives support from the symptoms of disease described by our informant, as well as from an examination of the amount of albuminoid fed daily.

An ordinary feeding ration contains about one and one-half pounds, or less, of albuminoid. The eight quarts of this feed under review weighed about eight pounds and contained about one and three-fourths pounds of albuminoid, while the hay, meal and bran fed in addition most probably contained at the lowest estimate a pound or more. We have hence as a probable amount fed regularly and for a long period about three pounds of albuminoid daily, an amount which experience has shown is likely to produce sickness, and, if followed up, death.

The conclusions which may be deduced from experimental feeding may be modified considerably by the extent of the herd. The constitutional character of cows differs greatly, and the practice of feeding which may be injudicious for the average cow may be apparently not

productive of harm when applied to an animal of strong digestive powers. Thus in my own herd, in which a careful record was kept of the amount and character of the food for a series of years, it was found that while some cows could be fed eight quarts daily of cottonseed-meal for a long period without apparent injury therefrom, yet the average feeding of this material could not be in excess of two quarts daily, with other food, without the appearance in *some* animals of ill results, and the feeding of four quarts daily to the herd resulted in the death of two animals with the symptoms as described by our correspondent.

The feeding of grain or of a highly nitrogenous food is always dangerous when carried to excess. Thus we all know that if a cow gets loose in the night and obtains access to the grain bin injurious effects are very likely to follow, and we never think of calling the meal poisonous in these cases. In like manner the overfeeding of cottonseed-meal, one of the most valuable foods for the dairyman to use (not to abuse), is apt to be followed by injury. This gluten meal that we are examining seems to fall into the same category of being a valuable food in its proper use. When results such as these quoted follow the feeding of these highly nitrogenous foods, we therefore should not be too ready to suspect poison as it is more reasonable to ascribe the ill effects which follow the feeding to injudicious feeding, and the blame should lay upon the feeder.

It certainly does not diminish the value of powder as an explosive if an overcharge will burst the gun. We recognize that the stronger the powder, *i. e.* the more easily it will burst a gun, the more valuable it is for use, and because its abuse is dangerous it does not lessen its value. In like manner while the use of nitrogenous foods is advantageous and as their value when properly used is gauged largely by the amount of albuminoid contained, it is certainly not against these foods that the overfeeding of them will destroy the animal. Our verdict in regard to these reported cases of poisoning must therefore be the fault is in the user, not in the material.

*January 29th we commenced feeding two mice exclusively upon this food, their drink being an aqueous extract from the same feed. This extract therefore contained any soluble poison in the food or insoluble poison mechanically held in the feed. No ill effects followed.

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