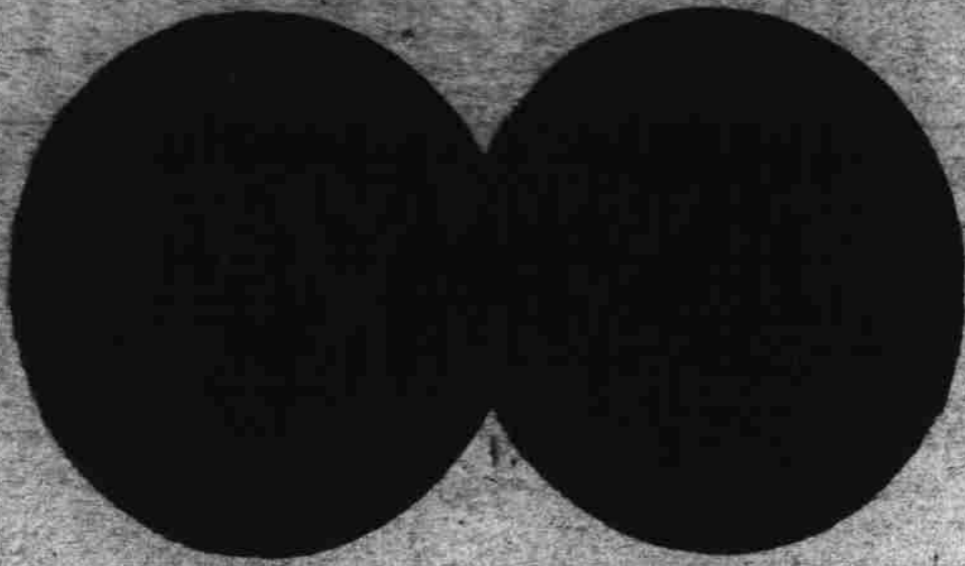


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LIVESTOCK AND DAIRY

HOW FEEDS AFFECT THE SIZE OF THE VITAL ORGANS

If an Animal is to Develop These Organs as It Should, It Must Be Given Plenty of Ash and Protein

IT IS usually assumed and I suppose the assumption is correct, although no experimenter has so far absolutely taken the problem out of the field of assumption—that the man who has a large heart and liver, large lungs and kidneys has a greater opportunity of living to a ripe old age than the man who, for some reason or other, has had some of these vital organs retarded in their development. This has always been assumed to be the case, but no one has proved it. But it seems reasonable and sensible to believe that a growing man should be given such feeds—plenty of ash and protein especially—as will allow his whole body, muscles, brain, bones, and internal organs, to reach their maximum growth and size.

It is surely sensible to suppose that a man should be fed such feeds as will allow his whole body to grow into what the Creator intended it should be when he gave it to the world. Anyway, it is surely a self-evident fact that nothing will be gained by withholding those foods from the growing child which go to the building of the muscles, the bones, and the internal organs. While nothing is gained by withholding properly balanced rations from the children, still thousands and thousands of our children are stunted year after year in both mind and body by the improper administration of foods.

Balance the Feed

BUT we started out to tell about the effect of feeds on the size of the internal organs of pigs. There is no difference, however, fundamentally, in feeding a pig and in feeding a child; they must both have plenty of ash and protein. Their rations will vary somewhat in detail, but they must both have what is known as a balanced ration, or their bodies are sure to suffer and become weakened in some way. It takes plenty of mineral matter and protein to make large bones and muscles and internal organs in a pig, and it requires exactly the same things to make large bones, muscles, and internal organs in a child. A ration of corn for a pig, as we shall see below, will not permit the organs to grow to the size the Creator intended they should attain; corn lacks a sufficient amount of mineral matter and protein—you can't build a brick house and complete it as a brick house without plenty of brick.

Let us see whether we can or not. Let us look at some experimental facts. While the writer was at the Alabama Experiment Station he fed a large number of pigs on various rations to determine, among other things, the most economical and best feeds for hogs from the standpoint of profit. At the end of the tests the hogs were all slaughtered and the carcasses examined to determine the effect of these various rations on the size of the bones, on the size of the internal organs, on the melting point of the lards, etc. The pigs, at the beginning of the tests, were approximately 70 pounds in weight; the weights, however, varied some from year to year. Their average weight at killing time was close to 150 pounds; this figure also varied some. It was soon noticed that the internal organs of the corn-fed pigs were small. It was also very quickly noticed that the pigs which were fattened on certain pasture crops had extremely heavy internal organs. The following table gives a very brief summary of the increase in size of the internal organs when the organs taken from the corn-fed hogs are compared with those taken from hogs

which were fed on corn in conjunction with other feeds.

INCREASE IN WEIGHT OF INTERNAL ORGANS DUE TO SUPPLEMENTING CORN WITH CERTAIN OTHER FEEDS

Supplementary Feeds	Increase in weight of organs*				
	No. Hogs	Heart Per cent	Lungs Per cent	Livers Per cent	Kidneys Per cent
Cottonseed meal, tankage, shorts and cowpeas	55	7	18	5	32
Corn plus soy bean pasture	20	7	46	25	64
Corn and shorts plus rape pasture	9	9	9	75	64
Corn and tankage plus rape pasture	5	9	16	63	54
Corn and tankage plus rye pasture	5	10	8	16	29

*That is, the weights of the organs of the corn-fed hogs were compared with those taken from hogs which had been fattened on a ration of corn plus something else.

It should be called to the attention of the reader that these variations in the size of the internal organs were all made during a short fattening period of 100 to 150 days; this represents only a short part of the life of a pig. It should also be noted that these pigs had attained a weight of approximately 70 pounds before these tests were inaugurated; they had all, up to the inauguration of the tests, had equal opportunity to develop the whole body. If they had been taken through these tests throughout their whole lives we would expect the difference represented above to be still greater in favor of the mixed feeds.

By referring to the above table it is seen that the mixed feeds always caused an increase in the size of the internal organs; that is, the corn-fed pigs had small organs when compared with those of the other pigs. The weights of the hearts were increased from 7 to 16 per cent, the lungs from 8 to 46 per cent, the livers from 5 to 75 per cent, and the kidneys (two taken together) from 29 to 64 per cent. The increases varied with the kind of feed.

It is not possible to state that these large organs were just so many per cent more efficient in doing the work of the body than the small ones, but it does seem reasonable to suppose that the large organs could do their work somewhat more satisfactorily than the small ones—provided the large ones were normal and healthy. As far as a naked eye examination could determine, all of the organs were perfectly healthy. On the other hand, it seems more reasonable to suppose that the organs of the corn-fed pigs were abnormally small, that they had not been permitted to reach their normal or predestined size. There is plenty of information to prove that the bones of a pig can be weakened 50 per cent within 150 days by the improper feeding of too much corn, and it does not seem illogical to conclude that the hearts, the lungs, the livers, and the kidneys may also be weakened in the same way.

DAN T. GRAY.

SALE DATES CLAIMED

The Progressive Farmer is glad to announce and claim for the breeders the following dates upon which sales of pure-bred livestock will be held:

- Herefords
 - Feb. 29-March 1, 1916—O. Harris & Sons, Harris, Mo.
 - March 4—St. Joseph, Mo., Northwest Missouri Hereford Breeders' Association, Jesse Bagle, Sheridan, Mo.
 - March 28—W. J. Davis & Co., Jackson, Miss.
 - Feb. 2—Des Moines, Iowa, under the management of the American Polled Hereford Breeders' Association.

- Shorthorns
 - Feb. 23, 1916—Leopoldus Farm, Hickory Valley, Tennessee, at Tri-State Fair Grounds, Memphis, Tenn.

- Aberdeen-Angus
 - Feb. 1, 1916—Breeders' Sale, Montgomery, Ala., M. A. Judy, Mgr., West Lebanon, Ind.

- Duroc-Jacks
 - Feb. 5—McKee Bros., at Forest Home Farm, Versailles, Ky.

Our readers will confer a favor upon us if they will keep us advised of sales, and we will be very glad to claim further dates for breeders if they will let us know in time.

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