United States Department of the Interior
Fish and Wildlife Service

Fishery Leaflet 29

Chicago 54, Ill. Reprinted August 1943

CRAB SCRAP AS POULTRY FEED [1]

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The total annual catch of hard crabs for the United States and Alaska is about 39,000,000 pounds; as approximately 85 percent of the crab is non-edible, the annual waste, based on the above figures is around 33,000,000 pounds. About 18,500,000 pounds of this is probably available in sufficent quantities for profitable utilization, and should produce, upon reduction, about 8,000,000 pounds, or 4,000 tons, of dried crab scrap suitable for poultry feed.

In an effort to determine the value of crab scrap as poultry feed, and experiment was conducted on a Maryland farm, the results of which are here reported.

A flock of poultry of no standard breed but of the barnyard variety, was separated into two groups of 25 hens each. They were of the same general type, size, and had similar egg-laying qualities. At the time the hens were separated they were in late molt and were too young to lay, therefore, no eggs were being received from either flock at the start of the experiment. Crab scrap was fed to the birds in one pen and not to those in the other which were used as a check.

Each hen received about three ounces of yellow corn and wheat per day. A dry mash consisting of 20 percent yellow cornmeal and 80 percent wheat bran was kept before both flocks during the experiment. Five percent crab scrap was added to the dry mash for the fowls in the experimental pen The crab scrap was gradually increased to 20 percent in the ration. Both groups consumed from 1½ to 2 quarts of dry mash per day, except that the fowls receiving the crab scrap took a larger amount of mash and appeared to eat with greater relish. Ample quantities of broken

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[1] Supersedes Memorandum S - 298, issued by the former Bureau of Fisheries. April 1929.

[2] Deceased.

oyster shell were kept in each pen. Because each flock had a run of about one-fourth acre, the fowls were able to pick up a few worms and some green feed.

A daily record was kept of the egg production, and the average weight of the eggs was obtained from time to time. Five representative hens from each flock were weighed once every two weeks. In addition, the following were noted: Shell texture of the eggs, and general appearance of the fowls.

Egg production from the two flocks

Month	In the pen in which crab scrap was fed	In the control pen
December	37	16
January	171	36
February	286	124
March	444	303
Total	938	479

As near as can be calculated from the results of weighing the eggs, it was found that the eggs from the fowls in the pen fed the crap scrap averaged one-eighth of an ounce heavier than those from the control group. The shell texture of the eggs from the pen receiving the crab scrap also was somewhat superior to that of the eggs from the control flock.

Increases in weight of five representative fowls from each pen at end of first two weeks

In pen fed crab scrap	In control pen
Percent	Percent
18	12.8
12	13.2
10	7.7
11	18.8
18	tag was lost

At the end of January the average weight of each hen in the experimental group fed crab scrap was 5-11/16 pounds. In the control pen the average weight was 5-9/16.

In December it was noted that the hens in the flock receiving the crab scrap came out of molt more quickly than did those in the control pen. A general improvement in plumage over the hens in the control pen also was shown by the flock receiving the crap scrap.

It should be taken into consideration that the basal ration fed to the birds in the control pen contained very little protein. For this reason the tests have been continued, and in the second phase of the experiment the protein content of the basal ration of both pens will be increased.

Analysis of the crab scrap used in the feeding test follows: moisture 6.075 percent; calcium carbonate 44.06 percent; calcium phosphate 8.54 percent; protein 28.13 percent; sulphur 0.2919 percent; iodine 0.000056 percent; other constituents not determined 12.9375 percent.

It can readily be seen from this analysis that crab scrap is a valuable supplement to poultry feed. The high percentages of calcium carbonate and calcium phosphate are particularly beneficial in stimulating egg production and in promoting a good texture for the egg shells. While the protein content is not so high as that of tankage, fish meal, and other concentrates, it may be that the protein is in a form more readily assimilated. Unquestionably, the mineral constituents of the ration played an important role in the greater egg production and increase in weight of the poultry. It is not impossible that some of the rarer elements are present in crab scrap as sea-water contains at least 34 of the elements useful to life.

Scientists have recently shown that these rarer elements are very important in the relative productivity of soils. The iodine content, namely 560 parts per billion, is many times greater than that of any feed from a land source. As is commonly known, iodine is valuable in maintaining the health of the human body and in the prevention and treatment of goiter. It may also be salubious for poultry.

Using crab scrap as a poultry feed would be far more desirable than diverting it to fertilizer as is the present custom. Its utilization as a feed concentrate would benefit both the poultryman and the fisherman. It is an economic loss to reduce to fertilizer a product that has such high nutritive potentialities as a feed concentrate. Crab scrap as a feed would command a price which it has not brought as a fertilizer stock. Only a negligible part of the potential supply is now being utilized as a fertilizer. Crab scrap brings thirty dollars a ton or 1-½ cents per pound as fertilizer stock and this is undoubtedly the reason why more of it is not now being reduced. Crab scrap is suitable for poultry feed as processed, hence no appreciable cost of manufacture would be involved in utilizing it for this purpose. Its price as a poultry feed concentrate should be at least 5 or 6 cents a pound. Such a price would assure profitable reduction and would greatly benefit the crab industry.