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FISH AND WILDLIFE SERVICE

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Mysterious losses among northern grouse, Hungarian partridges, and quail may be caused by vitamin deficiency, according to Albert M. Day, Director, Fish and Wildlife Service, United States Department of the Interior.

This opinion was expressed following intensive studies carried on by Ralph B. Nestler, biologist, at the Service's Patuxent Research Refuge at Bowie, Md., on vitamin A requirements of bobwhite quail for breeding, growth, and maintenance. Three generations of pen-reared bobwhites, totaling 2,244 birds, were used in the studies, and the research so conducted that the effect of a deficiency in the first generation could be traced through the third generation.

During the course of these nutrition experiments on America's most popular upland game bird it was learned that amounts of vitamin A stored in the liver of the quail lasted only a limited time, and unless the bird had access to food containing required amounts of the vitamin or carotene, it soon became weak and helpless.

Significantly, the experiments showed that even though the birds might be in plump condition and with crops full of food, it was still possible for them to be dying from avitaminosis, or vitamin deficiency.

The tests demonstrated that breeding quail required about 6,000 international units of vitamin A per pound of their diet; growing stock needed 3,000-4,000 units; and at least 2,500 units were necessary in winter for maintenance.

A deficiency of vitamin A, it was shown, had far-reaching effects; it affected the survival of the breeders, the number of eggs laid, the hatching of the eggs, and even the survival of the offspring regardless of the quantity of the vitamin in the latter's diet.

Directly applicable to northern conditions is Mr. Nestler's conclusion that yellow corn is the only commercial cereal that contains appreciable amounts of carotene, the plant source of vitamin A. Thirty-five percent of yellow corn in the quail's diet will supply the least necessary quantity of carotene to maintain life, according to Mr. Nestler.

Because all sources of vitamin A, or carotene, in the wild are scarce in winter, the Service is encouraging the growth, in hedgerows, of wild foods rich in carotene which are acceptable to quail. Stalks of yellow corn should be left standing in the fields, with the ears partially husked and bent downward so the quail can reach them easily. Greens, such as kale, which are rich in vitamins and can survive under freezing conditions, may be planted.

In light of the facts developed through this research, Service scientists suspect that a deficiency of vitamin A may be responsible for the failure of many restocking programs which utilize pen-reared quail. Likewise, a scarcity of vitamin A may be a potent factor in the periodic fluctuation in the population of wild quail and the shrinkage of their natural range.

The results of this experiment, which were delivered in a paper by Mr. Nestler at the recent North American Wildlife Conference held in New York City, may find wide application among game bird breeders and conservation departments. The pen-rearing of quail is rather a sizeable business, according to the Service. In 1940 there were 711 licensed quail breeders and more than 325,000 bobwhites were propagated on State farms or on private farms cooperating with the States, and over 62,000 live quail were purchased by the States.

The Service is continuing its investigations of vitamin A in collaboration with the Pennsylvania Game Commission and the Cooperative Wildlife Research Units in both Alabama and Virginia. Tests are now being run on wild quail to ascertain their storage of vitamin A.

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