

# PROPAGATION, RELEASE AND HARVEST OF MALLARDS AT REMINGTON FARMS

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## ABSTRACT

Artificially propagated mallards furnish most of the duck hunting for guests of Remington Arms Company, Inc., who hunt on 3145-acre Remington Farms. Each year some 6500 five-week old ducklings are released and fed to flight stage at three or four sites on the three miles of tidewater shoreline and 26 man-made ponds which range from one to 50 acres in size. Fall and winter foods are provided by flooded millet, grown for the purpose, and by waste corn, soybeans and other agricultural crops and wild plants.

Ducklings are incubator-hatched from eggs produced by some 400 one- and two-year old captive breeders, selected for good plumage and physical condition.

Although unwary prior to hunting season, these mallards soon learn to avoid the gun after shooting starts. They are strong fliers and under favorable conditions provide sporty gunning. Hunting success is high—many hunters bagging their limit.

Other ducks present, mostly during the early part of the season, include from 10,000 to 20,000 pintails and a few black ducks, wood ducks, shovelers, green-winged teal and a scattering of others.

During the 1970-1971 season, with a four-bird daily limit, hunters averaged 2.8 ducks per day. Remington mallards, identified by clipped hind toes, comprised from 85 to 90% of the annual harvest during the past three seasons.

## INTRODUCTION

Remington Farms is a 3,145-acre composite of numerous contiguous farms that had been purchased in the early 1940s by the late Glenn L. Martin. It was purchased from his estate in 1956 by Remington Arms Company, Inc. to demonstrate the compatibility of farming and wildlife management, as well as the superior capacity of farmlands for producing many kinds of wildlife.

About half of the property is in woodland. Most of the rest is cropland of various types. As on most farms in the area, corn is the principal crop, with soybeans running second.

Remington Farms is close to the Chesapeake Bay and numerous tributary tidal waters; but the general area lacks extensive marshlands to augment its attractiveness to dabbling ducks. The majority of wild ducks using the Farm are pintails, of which some 10,000 to 20,000 utilize the corn fields and most of the 26 man-made ponds.

Located on the Eastern Shore of Maryland in the heart of the wintering grounds of North America's largest congregation of Canada Geese, the Farms offers superb opportunity for observing, photographing, and hunting these and other forms of wildlife.

To assure season-long duck hunting, Glenn L. Martin began artificially propagating and releasing large numbers of mallard ducks in 1951. Remington Farms has continued these releases, although reduced from 10,000 and upwards to approximately 6500 each year. These birds provide the bulk of the ducks harvested by Remington Arms Company's guests.

## PROPAGATION

Ducks are selected each summer for the next year's breeders, some from the previous breeding flock and some from early hatches of the current year. They are selected with the aim of maintaining healthy, trim, properly-plumaged birds. The breeding flock consists of approximately 100 males and 400 females. Forty to fifty eggs are collected per hen. About 10% of these eggs are discarded as culls.

The breeders are housed in a 26' x 90', suitably-ventilated metal building in which a 14' x 18' concrete pool is provided. The water is changed daily. The gently-sloping floor is covered with shredded sugarcane litter. The breeders have access to a large outdoor fenced area except during the waterfowl hunting season. They are fed a 20% protein diet from February 15th through the egg-gathering period to about June 15th, and a 12% protein maintenance diet the rest of the year, plus shelled corn. All feed is pelleted to reduce waste, spoilage and possibly resulting disease.

Secluded nesting sites are provided on the floor around the walls. Eggs are collected daily, cleaned with water, dipped into a solution of calcium hypochlorite to destroy pathogenic bacteria, and stored in a moderately cool room.

Eggs are set weekly in a 7000-egg-capacity Model S-11 Petersime Incubator in lots of 1600 to 1800 eggs.

There are normally six or seven settings a year which total 10,000—12,000 eggs.

The incubator temperature is maintained at 99 1/4° and the relative humidity at 86%. In the 2000-egg-capacity hatching compartment, the temperature is maintained at 99 1/4° and the relative humidity as near 100% as feasible.

Eggs are moved to the hatcher on the 24th day after being set and normally hatch on the 26th or 27th day. The percent hatch averages 70% of all eggs set. Fertility averages 95%.

As ducklings are removed from the hatcher a hind toe is clipped on each as a means of identifying it later as a hand-reared bird. A three-year system of rotating toe clipping is followed: left, right, then both.

To reduce transmittal of pullorum disease to incubating eggs the incubator and hatcher are first thoroughly cleaned and fumigated with potassium permanganate crystals in formalin.

From 1100 to 1200 ducklings per hatch are started in an old building which has been converted into two compartments, each with a 2' x 28' pool. Newly hatched birds are started in the smaller 10' x 40' room. Approximately 50 square inches per bird are provided. Prior to the next hatch they are moved to the larger 17' x 40' room where about 90 square inches per bird are available. After the second or third week of age they are moved to another still larger building.

Platforms of hardware cloth on 2" x 4" frames, are located between the pool and the rest of the floor which is covered with shredded sugarcane. Hence, ducklings leaving the water lose most of their wetness while crossing the hardware cloth before walking on the litter. They are started on a 21% protein diet and changed to an 18% diet when three weeks old. Waste feed falls through the wire, and none that spoils can be reached by ducklings. The litter is changed each week.

Heat is provided by batteries of heat lamps suspended approximately 18 inches above the litter-covered floor. Lamps are raised as the birds grow.

#### RELEASE OF DUCKLINGS

Most of the 6000-7000 mallard ducks propagated are released at Remington Farms at five weeks of age. The first release is made around mid June and the last of six releases about the end of July. They are released at four widely separated sites: two where ten-acre ponds adjoin tidal waters and the other two on ponds near diked millet fields that are flooded come fall.

From the time they are released until two or three weeks before waterfowl hunting season the birds are continued on the growing diet, which is gradually supplemented with shelled corn. During the last two weeks of this period the daily amount of food is gradually decreased. By that time of the year a variety of foods, both domestic and wild, are available and the ducks are flying about foraging for them. We believe the percent survival of these ducks to flight stage is relatively high. Losses to disease are few. We attribute this to the antibiotic medication in their prepared feed, in that when started a few years

ago, disease-caused deaths dropped abruptly. Losses to predators appear negligible, yet we seem to have our full share of foxes, raccoons, stray dogs, horned owls, and others.

Unfortunately, on two sites our young mallards are subject to considerable exposure to people and appear relatively tame. But, as they begin flying they become more wary, and when hunting season begins, they become even wilder.

### HARVEST

Come hunting season, Remington Farms' mallards are healthy, strong fliers and because most of them have gained a rightful distrust of mankind, they present sporty shooting. They fly as well as wild mallards and respond about as warily to a stool of decoys. That Remington mallards are not ponderous is borne out by comparing their average weights with those of wild mallards (Nelson and Martin, 1953). See Table I.

TABLE I. Weight comparisons of some wild and Remington Farms' Mallards. (Number in parenthesis are sample sizes.)

	Remington Mallards		Wild Mallards
	1968-69 Season	1970-71 Season	
Males .....	2.65 lbs. (412)	2.59 lbs. (663)	2.7 lbs. (3963)
Females .....	2.36 lbs. (327)	2.35 lbs. (516)	2.3 lbs. (3169)

Duck hunting at Remington Farms falls into two types. About half of our shooting is over decoys from blinds located in or by ponds of shallowly-flooded millet. The other half is pass shooting from blinds located largely in 12- to 16-row strips of corn left standing in harvested fields. While the former method is more appealing to many hunters, the latter provides the more difficult type of shooting, especially with a strong wind—either on the bird's tail or from his side. Waterfowl are hunted four days a week and, on most ponds, only during half of each hunting day—usually in the morning.

Because of local mallard abundance and habitat management favorable to hunting, many gunners at Remington Farms bag their limit. Success, however, depends on the weather and on the hunter's patience and skill.

Over the past three seasons, increased bag limits have resulted in increases in both total annual harvest and the hunter's average daily take. See Table II.

TABLE II. Hunter success.

	1968-69 Season	1970-71 Season
Hunter Days .....	444	495
Daily Limit .....	2+ *	4
Total Harvest .....	830	1392
Average Daily Bag .....	1.87	2.81

\* Daily limit in 1968-69 season: 3 ducks, including 2 mallards.

In addition to Remington's released mallards, a few wild mallards also are present. Pintail ducks are abundant until freezing weather persists; then they leave, a few to return during the first several temporary thaws. Other species occurring in much smaller numbers include: black ducks, wood ducks, shovellers, and greenwinged teal. Diving ducks have provided limited hunting on bordering tidal waters some years but almost none the past four seasons.

During the past three seasons, Remington Farms' mallards have contributed from 85% to 90% of the total harvest of ducks, as shown in Table III. From the same table it can be seen that for each wild duck

bagged, an average of 5.6 to 9 Remington Farms' mallards were harvested.

TABLE III. Ratio of Remington Mallards to wild ducks harvested.

Hunting Season		Remington Mallards	Wild Ducks	Total
1968-69	Number harvested	741	89	830
	Percent harvested	89%	11%	
	Ratio in harvest	8	1	
1969-70	Number harvested	1057	121	1178
	Percent harvested	90%	10%	
	Ratio in harvest	9	1	
1970-71	Number harvested	1179	211	1390
	Percent harvested	85%	15%	
	Ratio in harvest	5.6	1	

Self-imposed hunter day limitations and government-imposed bag limitations restricted last year's harvest of Remington Farms' mallards to 18% of those released, as shown in Table IV. In prior seasons, with lower bag limits, the percent recovery was even lower, down to 10.6%. Cost per duck in the bag, therefore, has been five to near ten times the cost of a bird released.

TABLE IV. Recovery and Cost of Mallards Released at Remington Farms.

	Season 1968-69	Season 1969-70	Season 1970-71
Number released	7000	6500	6500
Number harvested	741	1057	1179
Percent harvested	10.6%	16.3%	18.1%
Birds of the year harvested	515	753	1021
Percent of the year harvested	69.5%	71.2%	86.6%
Cost per bird released *			\$ 2.40
Cost per bird bagged			\$13.35

\* Cost included cost of feed and labor from release until two or three weeks before hunting season.

There is considerable turnover in the Remington Farms' mallard population. During the past three seasons, for example, birds of the year comprised from 69.5% to 86.6% of the harvest of Remington Farms' mallards. Despite the large annual releases, there has been no increase in the local population over the years. Approximately a thousand birds remain on the Farms each spring.

About 10% of the mallards released each year are banded. But band returns have not yet been analyzed. Results of such analysis will be presented at a later date.

#### LITERATURE CITED

Nelson, A. L. and A. C. Martin. 1953. Gamebird Weights. J. Wildl. Mgmt. 17:36-42.