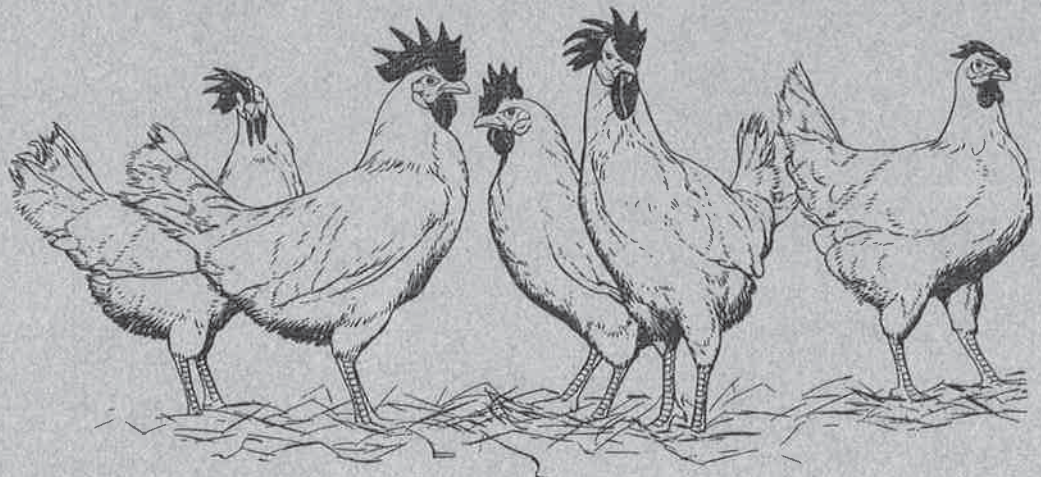


Raising Waterfowl



RAISING WATERFOWL

Ducks and geese are popular farm animals. The unique personalities of these birds add to their appearance. Ducks and geese easily become attached to humans and make great pets. They are relatively easy to raise and require minimum attention and simple equipment and housing. Even the fancy purebred varieties of waterfowl produce very nice carcasses.

Table 5. Duck Breeds

There are 14 "standard" breeds of ducks which are divided into 4 classes: heavy, medium, light, and bantam. Table 5 categorizes the breeds of ducks into the various classes and gives additional information on the different breeds.

Class	Breed	Variety/Color	Standard Adult Live Weight (Lb)	Average No. Eggs Per Year	Fly	Generally Recognized Purpose	Special Distinguishing Features
Heavy	Aylesbury	White	8-9	40-60	No	Meat	White skin and bill, large deep keel
	Muscovy (Pato)	White, Blue Chocolate, Colored	9-12 (males) 5-7 (females)	60-120	Yes	Meat/Eggs	White skin and bill, red warty face, males much larger than females, quite voiceless hiss
	Pekin	White	8-9	100-180	No	Meat/Eggs	Yellow skin and feet, orange bill
	Rouen	Gray**	8-9	40-60	No	Meat/Ornamental	Yellow skin, large deep keel
Medium	Buff	Buff	7-8	60-100	No	Meat/Ornamental	Buff plumage
	Cayuga	Black	7-8	60-100	No	Ornamental	Beetle-green sheen
	Crested	Black, White	7-8	60-100	No	Ornamental	Ball of feathers on back of head
	Swedish	Blue	7-8	60-100	No	Ornamental	Blue plumage with white breast
	Campbell	Khaki	4-5	200-300	No	Eggs	Seal-brown plumage
Light	Magpie	Black and White, Blue and White	3-4	30-60	No	Ornamental	
	Runner	Black, Buff, Chocolate, White, Cumberland Blue, Fawn and White, Pencilled, Gray**	3-4	100-150	No	Eggs/Ornamental	Unique upright carriage resembles a walking bottle
Bantam	Call	Blue, Gray, ** Snowy White	1½-2	20-50	Yes	Ornamental	Small, round heads and bodies; loud calling sound from females
	East India	Black	2-3	20-50	Yes	Ornamental	Beetle-green sheen
	Mallard	Gray	3-4	20-50	Yes	Ornamental	Resembles common wild mallard

**Gray color pattern same as wild mallard

Table 6. Geese Breeds

There are 11 "standard" breeds of geese which are divided into 3 classes: heavy, medium, and light. Table 6 shows the classes and characteristics of the different breeds.

Class	Breed	Variety/Color	Standard Adult Live Weight (Lb)	Average No. Eggs Per Year*	Fly	Generally Recognized Purpose	Special Distinguishing Features
Heavy	Toulouse	Gray, Buff	20-26	20-50	No	Ornamental	Massive, loose feathered, large dewlap
	Embden	White	20-26	40-60	No	Meat	Blue eyed, large white geese
	African	Brown	18-20	30-50	May	Meat/Ornamental	Knob at base of upper bill, distinctly dew-lapped
Medium	Sebastopol	White	12-14	20-40	No	Ornamental	Reverse curling to body feathers
	Pilgrim	Sex-linked	13-14	20-40	May	Meat	Males white, females gray
	American Buff	Buff	16-18	20-40	May	Meat/Ornamental	
	Saddleback Pomeranian	Gray, Buff	14-16	20-40	No	Meat/Ornamental	Half of neck colored; back colored, giving the appearance of a saddle
Light	Chinese	White, Brown	10-12	60-100	May	Meat/Eggs Ornamental	Noisy, large knob at base of upper bill, long slender neck
	Tufted Roman	White	8-10	20-40	May	Ornamental	Tuft of feathers on head
	Canada	Common	10-12	10-20	Yes	Meat/Ornamental	Like common wild goose
	Egyptian	Colored	4-6	10-20	Yes	Ornamental	Appear to have iridescent plumage, black patch around eyes

* If maintained under commercial management conditions

SOURCES

Where you obtain your stock depends on why you are raising ducks or geese. Those raised for meat may be purchased from a commercial hatchery or local feed mill. Purchase breeding and exhibition stock from established breeders. Commercial hatcheries do not normally deal in quality exhibition stock. Check local or state fanciers' clubs, shows, or poultry publications for the names and locations of breeders of purebred waterfowl.

It is usually better to buy stock from a local breeder instead of ordering stock through the mail, since you can see how birds are raised, observe their health, and ask questions. Shipping is costly and stresses the animals.

Inexperienced persons should not buy breeding stock at swap or trade days even though you might attend these events to learn what birds are available. Try to deal with breeders at their place of business.

The number of birds to buy depends on several factors, including available time, facilities, and finances. It is better to raise a few well-cared for birds than to burden yourself with too many mediocre, overcrowded birds. Additional birds may be purchased or raised as you gain experience.

BROODING AND REARING DUCKLINGS AND GOSLINGS

Artificial Brooding

Ducklings and goslings can be brooded much like baby chicks. Waterfowl require more floor and feeder space due to their rapid growth and need heat for a much shorter time than chicks.

Brooding House

Domestic waterfowl do not require special brooding facilities. The brooder system must keep young birds dry and clean and provide plenty of fresh air (without drafts). A concrete, wood, dirt, or gravel floor is satisfactory if covered with a thick layer of litter. Crushed corn-cobs, wood shavings, sawdust, straw, or other commercial litters are satisfactory. Do not use fine litter until waterfowl learn to distinguish it from their feed. Otherwise, excessive litter consumption can result in death. The litter should be changed when wet or dirty. Be sure litter is free of molds.

Use small-mesh wire (approximately $\frac{3}{8}$ -inch) if young waterfowl are raised on wire. Do not raise bantam ducks or other small-legged waterfowl on wire as their hocks often drop through the mesh and become trapped. Cover the wire or litter with an old burlap bag or rags for the first week. To prevent leg injuries, do not use newspaper or any other slippery surface.

Floor Space

Ducks and geese need plenty of room to grow. Crowding slows growth and increases mortality. Allow one-half a square foot per bird for the first 2 weeks. Double the space provided every 2 weeks until 4 square feet per duck and 6 square feet per goose are available, or until birds are placed outside.

Heating

The proper temperature must be maintained in a draft-free pen. The temperature should be 90 °F (at back height) during the first week. Determine the temperature at about 3 inches above the litter for ducks and 6 inches above the litter for goslings.

Place young birds under the heat source when they are first placed in the brooder. After 10 days reduce the temperature 5 °F per week down to 70 °F. During extremely cold weather reduce the temperature gradually, since any drastic changes in temperature may shock or stress

birds. Birds over 6 weeks of age do not usually require heat since most waterfowl are fairly well-feathered and can care for themselves on outside range by that time.

Good managers observe their birds closely. Once young birds learn the locations of heat, they will move to an area where they feel comfortable. Birds huddled tightly together directly under the heat source are too cool; those crowded near the outer areas of the pen are too warm.

In floor pens, place a 12-inch-high cardboard or hinged wood circle 3 to 4 feet from the edge of the heat source to prevent drafts, prevent birds from huddling in cold corners, and keep them near the heat for the first week. Remove the guard after a week.

Feeding and Watering

Always provide convenient access to feed and water in the brooder. Chicken equipment (feeders and waterers) can be used if openings are large enough for waterfowl heads. Increase trough space frequently to avoid crowding as the birds grow.

Give young waterfowl only unmedicated feeds to avoid possible adverse reactions. Use starter mash formulated specifically for waterfowl, if available.

Commercial starter, grower, and breeder diets for waterfowl are usually available from local feed mills. Pelleted feeds are usually best even though they cost slightly more than mash feeds. Waterfowl tend to waste feed, especially when it is finely ground.

Feed a starter ration during the first 3 weeks and then change to a grower. Birds 3 weeks of age can be fed small leafy greens or allowed on limited range. To prevent digestive problems, feed some grit a week before allowing access to green plants. Table 7 and Table 8 show nutrients recommended at different ages.

Table 7. Nutrients Recommended for Ducks

Nutrient	0-3 weeks Starter	After 3 weeks Grower	Breeder
Metabolizable energy (cal/lb)	1350	1400	1300
Protein %	22	16	15
Calcium %	0.6	0.6	2.75
Phosphorus %	0.6	0.6	0.6

Table 8. Nutrients Recommended for Geese

Nutrient	0-6 weeks Starter	After 6 weeks Grower	Breeder
Metabolizable energy (cal/lb)	1350	1350	1300
Protein %	22	15	15
Calcium %	0.8	0.6	2.25
Phosphorus %	0.6	0.4	0.6

Dip the bills of some birds in water to help them find the water. **Provide plenty of fresh water at all times.** Water is essential to keep waterfowl growing and healthy. Make sure young ducks and geese cannot get into the waterers. The drinking area should be large enough for birds to dip their heads into the water (at least as deep as their eyes).

After 2 weeks, place the waterer on wire-covered stands 4 inches high to help keep litter dry. Locate the waterers some distance from the feeding area to prevent birds from transferring feed directly into the waterers.

Keep Young Waterfowl Dry

Do not let young waterfowl swim or become excessively wet for the first 3 weeks. Young birds that become wet chill easily, tend to crowd, and may flip onto their backs resulting in death.

HANDLING GEESE AND DUCKS

To catch ducks and geese, slowly walk them into a small area or corner. Do not chase them. Never catch or carry them by the legs since their weak legs are easily disjointed or broken.

Catch waterfowl by placing one hand firmly around the neck near the body. Then place the other hand on the bird's back over the wings. Release the neck and gently slide the palm of your hand under the breast and abdomen, so the bird's weight is supported on your forearm. Lift birds under your arm and hold their legs gently between your fingers to prevent them from scratching. Hold wings to prevent flapping. Medium and light waterfowl can be carried for short distances by grasping the wings near the body, but larger, heavier ducks or geese should not be carried in this manner.

SEXING WATERFOWL

Visual Sexing

Ducks are easier to sex than geese. Male ducks usually have so-called "drake feathers" which curl forward from the top of their tails. Female ducks lack these feathers. The call of mature males is soft and hoarse; females make a loud, distinct quacking sound.

Sexually mature gray (mallard-colored) drakes have green iridescent feathering on their heads which is lost during the eclipse phase of the molt in the summer. Females with gray color pattern have penciled feathers throughout their bodies.

Female and male Muscovy ducks have identical plumage. The males lack curled drake feathers. Neither sex has a pronounced voice. The sexually mature males show more and larger caruncles and their bodies are twice as large as females. (Caruncles are the red, fleshy, wart-like tissues around the eyes.)

There are few differences in the voice or plumage of male and female geese. Male Pilgrim geese have white plumage and females have grey and white plumage. Among breeds with knobs on the head, such as the Chinese and Africans, males' knobs are usually much larger.

Vent Sexing

Vent sexing is usually the most reliable method to sex geese. This method may also be used for ducks.

Turn the bird on its back, preferably over a knee or table top, and place its tail back over the edge. Then place your hands on both sides of the vent and push against the sides of the vent with thumbs while your fingers press the tail back. Apply some pressure directly below and on the sides of the vent to invert or expose the extremities of the sex organ.

The male organ in some birds is somewhat difficult to unsheathe. A bird may be a male even if no corkscrew-like male organ appears after applying slight pressure. Only the presence of a female genital eminence (rosette) positively indicates that a bird is a female.

SELECTING AND PREPARING BIRDS FOR MARKET

Some people raise ducks and geese only for meat. Yet exhibition and breeding waterfowl must also be culled to remove excess and undesirable birds. These culls are usually edible and can also be marketed as meat birds.

Marketing for Food

Young ducks are usually marketed at 7 to 8 weeks of age when they weigh about 4 pounds. Young geese can be sold at 6 to 12 pounds (15 to 20 weeks of age) or at 5 to 7 pounds (10 weeks of age). Be sure you accurately indicate the weight, age, and class of poultry you sell.

Most surplus waterfowl can be marketed by advertising in local papers or shopping guides. Ducks and geese may be sold live or dressed. The owner usually will either slaughter and dress them or have them custom processed. Those who market many birds usually sell them to a waterfowl processing plant.

Waterfowl can be killed, dressed, and picked like other types of poultry. They are harder to pick than chickens, but are easier to pick at certain times. Catch a few birds a week before you plan to slaughter and pull out a tail feather and a few breast feathers. If the tips show signs of blood or are very soft and flexible, wait another 7 to 10 days before slaughter. Feathers with hard tips which are easy to remove indicate that birds should be slaughtered as soon as possible. Birds usually pick better in fall after their feathers mature.

Provide water but do not feed birds 10 to 18 hours before slaughter. Withholding feed helps prevent contamination during slaughter. Handle birds carefully before slaughter to avoid bruising the flesh. The appearance of dressed carcass is extremely important. The breast and legs should be fully developed and free from defects.

Dressed birds may be sold fresh or frozen. Place dressed birds in closed, moisture-proof bags to prevent discoloration and dehydration. Refrigerate fresh-dressed birds below 40 °F for no longer than 5 days.

Marketing Breeding Stock

Breeders of good-quality stock frequently exhibit their birds at shows. Contacts made there often lead to sales. Others depend on word of mouth, reputation, customers, successes, and advertising to sell their quality stock. Clubs also sponsor sale days or swap meets. Consider advertising in poultry publications, newsletters, and local newspapers.

SELECTING AND MANAGING BREEDER FLOCKS

Waterfowl selected for breeding stock should show vigor and good size for their breed. Good breeding stock have well-placed and strong legs, proper carriage, adequate body depth and width, smooth feathers, and exhibit free and easy movement. Keep additional males and females to allow for further culling, mortality, and injuries.

Breeders for market flocks should be selected when birds reach market age. Make the final selection when birds reach sexual maturity. Potential breeders for exhibition flocks should be culled for poor traits after they reach sexual maturity. Exhibition birds should show the breed characteristics illustrated in the American Poultry Association's *Standard of Perfection*.

General Breeding Management

Drakes will readily mate with almost any female. One vigorous drake can service five to six females.

Most breeds of geese mate in pairs or trios, although ganders of some light breeds will mate with as many as five females. Canada geese usually mate in pairs and mate for life. Most ganders of other breeds also tend to prefer a particular mate.

Any well-lighted, well-ventilated, draft-free, and dry shelter is satisfactory for breeding waterfowl. Provide convenient access to the outside yard since waterfowl prefer to be outdoors during the day, even during cold weather.

Dry, clean litter helps eggs stay clean, and also prevents birds' feet from getting damp and freezing during winter. Provide 4 to 5 square feet of floor space for each breeding duck and 5 to 6 square feet for each goose.

Provide at least one nest for every four to five laying females. Nests are easy to build. Duck nests can be made by constructing 12- to 14-inch partitions every 12 inches along a 6-foot board (back). Nail a 2-inch board along the lower front. Place the nests against a wall and add straw or shavings to encourage the birds to lay in the nests. Similar nests for geese should be proportionately larger. A barrel open on one end is also satisfactory. Block the sides so the barrel cannot roll. Ducks and geese like to cover their eggs with bedding. Gather eggs daily to encourage continued laying and delay broodiness.

Waterfowl normally start laying eggs in late February. Egg production usually peaks in April and declines rapidly during June. Ducks lay more consistently and over a more sustained period than geese.

To bring mature waterfowl into production during fall and winter, gradually increase the length of the lighted period to 14 to 16 hours daily. Supply light 3 to 4 weeks before desired start of egg production. The males must be placed under light 2 weeks before the females.

Provide grit to breeders at all times. Limestone or oystershell should also be available before and during egg production.

INCUBATION

The incubation period for waterfowl eggs varies.

Most ducks	28 days
Muscovy (ducks)	35 days
Most geese	30 days
Canada and Egyptian geese	35 days

Since waterfowl tend to lay eggs early in the mornings, collect eggs from 6 a.m. to 9 a.m. and again later in the day.

Use warm water to wash (but do not soak) excessively dirty eggs. Water which is slightly warmer than the egg opens pores in the egg, making the egg "sweat" and thus helping release dirt. Eggs that are slightly dirty may be cleaned gently with sandpaper, steel wool, or a damp cloth.

Store the eggs in a cool, damp area in a basement or fruit cellar where temperature is about 55 °F and relative humidity is around 75 percent. Store eggs with the air cell up. Quality and hatchability decline if eggs are stored for more than 10 days. Eggs kept for more than 10 days should be stored on their sides and turned daily.

Natural Incubation and Brooding

Most domestic waterfowl lack the instinct to incubate or brood eggs properly, but some people report good success using the Muscovy duck as a “foster mother.”

Waterfowl eggs can also be placed under broody chickens. Turn large waterfowl eggs under a hen three times daily since the eggs are too large for the chicken to turn. A chicken hen can usually cover 7 to 10 duck eggs or 4 to 6 goose eggs. A duck or goose can usually cover 8 to 13 of her own eggs.

Waterfowl eggs usually hatch best in nests located on damp soil or where eggs can be moistened in some way. It helps to sprinkle the eggs daily with warm water. Remove any early hatching ducklings and goslings from the brooding mother as soon as they are dry. Otherwise, the hen may leave the nest before hatching is complete.

Place the female and her brood in a weatherproof coop and provide feed and water. Do not let the young out in tall or wet grass.

Artificial Incubation

Follow the incubator manufacturer’s directions and recommended operating procedures. Machines have different temperature and humidity scales. Waterfowl eggs generally require more moisture during incubation than eggs from other fowl. It is best not to incubate waterfowl eggs with eggs from other birds.

Start and check the incubator before use and monitor the temperature for at least 24 hours before setting the eggs. In a still-air incubator, a thermometer placed so its bulb is level with the top of the egg should read a constant 102 °F. In a forced-air incubator (one with a constantly running fan), the temperature should be 99.5 to 100 °F. Eggs should be at room temperature before they are placed in the incubator.

Eggs lose some moisture during incubation, but this loss should not exceed 15 percent of the original egg weight. A pan of water in the incubator helps maintain humidity levels. The pan should be about as large as the tray of eggs. A sponge in the water increases the surface area for evaporation.

Try to maintain relative humidity at 60 to 70 percent during incubation. Increase relative humidity to 70 to 80 percent at hatching time. Low humidity will cause death if the shell membrane sticks to the young during hatching. Misting eggs with warm water twice daily also helps maintain humidity.

If you hand-turn the eggs in your incubator, mark one side of the egg with an “X” and the other side with an “O” to keep track of the turning schedule. Turn eggs three times daily. It is best if eggs in automatic incubators are turned every 3 hours. Eggs are turned less frequently by hand to avoid excessive cooling when the incubator is opened.

Candle eggs after about 10 days of incubation and remove those rotten or infertile eggs that are totally dark or totally clear. Handle eggs gently. Avoid excessive temperature change during candling and do not remove eggs from the incubator for more than 10 minutes.

Stop turning eggs 2 to 3 days before hatching and place the eggs on their sides in a hatching area. Do not open the incubator again until the hatch is complete, except to add water or adjust the incubator. Make sure the brooder is ready for the ducklings and goslings when they hatch. Birds that hatch after the usual incubation period are usually weak and should not be saved for breeding stock. Hereditary factors may be partially responsible for non-vigorous, late hatchers.

Remove the young birds from the incubator after their down is dry and place them in a brooder.

OTHER CONCERNS

Flight Prevention

All bantam ducks, Muscovy ducks, and Egyptian and Canada geese can fly.

Mature adults can be confined to prevent them from flying. Pinioning waterfowl (removing the last segment of one wing of day-old birds) also prevents flying. Other flight-prevention measures include clipping the flight feathers of one wing using a wing brail. Clip the primaries of only one wing. This procedure must be repeated at each molt.

Lameness

Ducks and geese have very weak leg and thigh joints. Lameness can be a problem if birds are handled improperly or mismanaged. Avoid sudden movements near the flock and never chase waterfowl or grab their legs.

Newly hatched waterfowl are weak-legged and unsteady, especially during the first week, so don't place ducklings and goslings on newspapers or other slippery surfaces. Putting a paper towel or a piece of burlap or cloth on the floor during the first weeks increases traction and will help prevent spraddled legs.

Spraddled legs can sometimes be corrected by loosely tying the legs together above the hock joints until the young bird can stand normally.

The most common cause of lameness in adult waterfowl seems to be "bumblefoot," an infected callus on the foot pad. Bumblefoot occurs when waterfowl walk on very hard-packed and dry surfaces such as concrete floors, hard-packed ground, and gravel. Once the foot pad dries out and cracks, bacteria infect the foot and a pus-filled callus forms. This problem is more prevalent in larger and older birds.

To prevent bumblefoot, cover hard surfaces with a deep layer of dry, fluffy, clean litter or keep birds in grassy areas. Ducks and geese free to swim in fresh water have few problems with bumblefoot. To treat bumblefoot, remove any core or pus from the pad, wash the area thoroughly, and clean it with a bactericide. It also helps to place an infected bird alone in a quiet area, with clean, dry litter and easily accessible water and feed until it gets back on its feet.

Other lameness can be caused by thorns, slivers, or cuts in the foot pad. Remove any dirt or slivers and clean the pad thoroughly.

Blowouts

Blowouts occur when part of the cloaca and oviduct are forced out of the vent, usually when young females lay oversized eggs or when overweight breeding females come into production.

To treat, gently wash the protruding tissue and push the tissue back in the bird as her muscles relax. However, blowouts tend to recur and many birds will die soon after a serious blowout. Some mild blowouts may heal. Since the tendency toward blowouts is thought to be inherited, eliminate females that show this ailment.

Twisted Wing

Twisted wing occurs when the primary feathers on one or both wings grow away from the bird's body. The problem seems to be caused when very rapid growth and development of the primary feathers causes wings to become too heavy to be properly supported. Twisted wing occurs only in domestic waterfowl. Decreasing the protein content of the feed and feeding more fibrous greens can help alleviate the problem. Since twisted wing may be an inherited trait, do not keep affected birds for breeding stock.

Twisted wings can sometimes be corrected if treated early. Align the feathers properly and tie or tape them in the normal position. Release feathers after 3 to 4 days. Repeat the treatment if necessary. However, trying to realign feathers is not always successful, so it is probably best to remove affected birds.

Disease and Parasites

Ducks and geese are seldom affected by disease and parasites, in part because most people raise only a few birds and provide plenty of range. Providing plenty of clean water so waterfowl can clean themselves will prevent infestations of lice and mites.

The following practices are also recommended as preventative measures:

- Raise waterfowl on well-drained soil.
- Keep bedding and laying areas clean.
- Keep feed dry.
- Discourage any contact between your birds and wild waterfowl.

Signs of disease include weak and listless movement, loss of appetite, inactivity, ruffled feathers, and sudden mortality.

Matted eyes can occur if waterfowl are not allowed to submerge their heads in water to flush out their eyes. Disinfect the waterers, separate infected birds, and carefully remove the crusty or sticky pus around the eyes. Provide fresh, clean water so birds can dip their head well over their eyes.

Ducks and geese may ingest nails, pieces of glass, wire, or other objects which can cause internal bleeding, suffocation, or loss of balance. Remove small and sharp objects from the pens and range of ducks and geese.

If any unusual symptoms occur, isolate affected birds and contact your state diagnostic lab, veterinarian, or an experienced waterfowl breeder to help diagnose diseases or ailments.

EXHIBITING WATERFOWL

Raising waterfowl for exhibition can foster pride in your flock. Many poultry fanciers establish clubs and sponsor shows. Consider the following factors when exhibiting poultry:

- Raise show-quality birds, purchased from a reputable breeder known to be breeding for conformation to the standard. Know the standard for the breed as described in the American Poultry Association's *Standard of Perfection* and understand the judging system.
- Select birds which best represent the standard for both breeding and exhibiting. Exhibit birds and talk to other breeders and judges to learn more about showing and breeding. Enter several birds which you feel best represent the standard.
- Ask breeders about shows, poultry clubs, and poultry publications. *Poultry Press* magazine lists shows and provides other valuable information.

Preparing waterfowl for show is relatively easy. Birds raised in clean pens and with access to plenty of fresh water will keep themselves clean. Place birds in a special grassy pen with fresh water for 2 weeks before they show so they will clean themselves. Their feet and bills may require additional cleaning with a damp cloth or soft brush.

Transport waterfowl in sturdy and well-ventilated wire cages, wood boxes, or cardboard boxes which provide ample space to avoid injury and keep birds clean. Use plenty of fresh litter in the transport coop so birds remain comfortable and clean. Carrying cages may be purchased or made. Avoid drafts during transport and never transport birds in the trunk of an automobile since they may suffocate or die due to exhaust system fumes. Exhibition is a learning experience and an enjoyable aspect of waterfowl breeding.

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