



# Processing Plan for 1000-1200 Birds Per Hour



As you begin planning your processing operation, obtain the advice of your local inspector. Requirements vary from one geographic area to another. By obtaining the blessing of your local inspector, you can often save time and expense. Local extension personnel can also be a good source of knowledge.

A summary of personnel required is shown in Exhibit 1. You will need about 6 people to kill, scald, and pick. You will need about 16 people to eviscerate, and pack. Exhibit 2 shows the approximate location of these 22 people.

## KILL

When killing the bird, it is best to cut the carotid artery, not the windpipe. This allows the bird to more easily bleed and minimizes shock. A properly bled bird will have little or no blood around the bone or joint. If you use an electric stunner and blood appears in the joints, the bird has been stunned too hard. Turn the setting lower. Do not cut the head off as the bird is bled. This will result in an undesirable appearance. The head should be removed during the evisceration process. Estimate bleeding time at about 1 minute and 15 seconds.

## SCALD AND PICK

After birds are bled, they should be scalded then picked as soon as they can be loaded into your scald. SCALD AND PICK WITHOUT DELAY. The scald is the key to a good pick. When analyzing damaged birds, please note. If bird shows a bruise, the bruise happened before the bird was killed or during death shudder. A bled bird will not bruise. The darker the bruise the older the injury. If a broken bone has blood around it, the breakage occurred while the bird was alive. The darker the blood, the older the injury. Pick only long enough to pull feathers. Extending pick risks skin tearage. Excessive skin tearage in the breast and inner thighs are signs scald is too hot or long. Fatty tissue under skin should not liquefy. If fat breakdown occurs, scald is too hot.

### Recommended Scald Capacities are:

Model No.		Length of Scald	Birds Scalded At One Time
SS48SS	Broilers	1 minute	24
	Pheasants	1 minute	24
	Turkey Hens	1 minute	8-10
	Turkey Toms	1 minute	5
	Quail	30 seconds	50-60
	Duck	1 minute	30
	<b>Scald Temperatures:</b>	Broilers	145° F (63° C)
	Quail	127° F (53° C)	
	Duck	150° F (66° C)	

### Recommended Pick Capacities are:

Model No.		Length of Scald	Birds Scalded At One Time
SP38SS	Broilers	30 seconds	12
	Pheasants	30 seconds	12
	Turkey Hens	30 seconds	5-7
	Turkey Toms	30 seconds	3
	Quail	15 seconds	35 to 40
	Duck	30 seconds	15

## CAPACITIES ARE NOT GUARANTEED

All capacities indicated for individual machines or for complete systems are approximate. The ability to achieve the capacities indicated depends on many factors including but not limited to labor force experience, plant layout, whether or not equipment is operated under continuous production and size of the birds. Capacities indicated generally assume a 2.5 pound (1.1 kilogram) broiler. Birds larger than that will reduce capacity.

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When processing pheasant and turkeys, hand strip heavy wing and tail feathers (“flight feathers”) before picking. Water fowl are a difficult species to pick—whether they are dry picked (no scald) or if they are scalded and picked.

Use only model SS48SS Scalding and Model SP38SS Picker for larger turkey operations. Our smaller picker and scalding can be used if you are processing a few turkeys. If when picking, it is apparent that the birds are not sufficiently scalded, we recommend a longer scald, not a higher temperature.

Consider placing a sturdy step or platform between your scalding and picker. This can improve productivity by making it easier to move birds between the two machines.

Make sure your Model SS48SS Scalding is properly vented and that the vent is open. Without venting, heat builds up under the scalding and can cause equipment damage. Also, efficiency will be reduced resulting in higher gas consumption.

With practice, you can achieve a yellow skin if desired. A bird has two skins. The outer yellow skin is usually loosened in the scald. However, if you drop the scald temperature to 127° F (53° C), the outer yellow skin will remain in place. Scald for the same length of time, just drop the temperature.

There are markets for feet. Should you elect to market them, you can get them in presentable condition. Scald the feet twice (1 minute each time) and pick once for 30 seconds. The skin should be removed and you should have a marketable item.

## **EVISCERATE**

Do not run the eviscerating line conveyor any faster than necessary to get the production you need. Usually 1200 birds per hour requires 20-22 feet per minute line speed.

Two workers can remove feet (at hocks) and cut oil glands (at base of tail). This is normally done before birds are hung on the shackle (feet may need to be left on small birds to hang in shackles). Position a barrel or cart near this area to catch feet.

The fourth and fifth workers can hang the bird on the shackle, hook the head (3 point suspension), cut skin up the back of the neck and pull crop.

Sixth and seventh workers open the tail, cut and pull vent.

Eighth and ninth workers draw entrails, separating heart, liver, and gizzard (giblet mass), discarding offal. Care must be taken to pull the intestines without tearage or rupture. Contamination can result if the operation is improperly performed.

A tenth worker can separate giblets, carefully pinch gall from liver or cut it with heart and liver shears. The gall may cause contamination and discoloration if broken. The sack can be removed from around the heart with your fingers. Trim tubes with shears.

The eleventh worker can split, wash and trim gizzards (a hack saw blade works well for splitting open the gizzard). Trim gizzard with shears. Fat and lining will be removed by peeler.

The twelfth worker can mechanically peel gizzards, move giblets to chill area, refill and ice giblet pans. This worker will not be busy all the time, but this procedure is hard to combine with another.

The thirteenth worker will remove the lungs and wash the cavity.

The fourteenth worker will remove the head, cut the neck at the base, perform a carcass wash and inspection, then drop into the chill tank.

A supervisor can stock, rinse and move chill tanks, as well as perform spot inspections.

After carcasses and giblets are chilled, 2 workers can drain and wrap giblets, drain carcasses, pack giblets in carcass and bag carcasses to prepare for freezing, etc.

	<b>Per Minute</b>		<b>Per Minute</b>
Cut Feet	26.9	Trim Heart	25.6
Cut oil sack	36.8	Trim Liver	22.7
Hang on 3 point	36.2	Trim, Open and Wash gizzard	11.7
Pull Crop	14.4	Peel Gizzard	38.2 by machine
Remove Vent	21.6		17.8 by hand
Draw Entrails	13.7	Remove Lung	21.5 by vacuum
			14.5 by hand

## CHILL

Consult a refrigeration or ice machine manufacturer or other expert about chilling your birds. This can be a capital intensive part of your operation. Purchase equipment that can be serviced in your locale. Purchasing an ice bin allows you to run your ice machine 24 hours a day. Other options for consideration include placing ice storage inside of a cooler or placing an ice machine on top of a small cooler. In other words, there are several creative possibilities for adding the cooling capability you need.

Chilling is necessary to reduce pathogen development. Chilling by itself will reduce pathogens. Birds need to be thoroughly washed as well. Birds need to be chilled to below 40°F (4°C), i.e. 35 – 37°F (2–3°C) within 4 hours of death. Maintenance of the bird at this temperature can give shelf life of 7–10 days. The inside of the carcass should be chilled to this temperature. In operations of the size and type we sell, some variation of ice is usually used. Cubed, diced, flaked or crushed ice works better than large ice chunks. The amount of ice depends on the ratio of ice to water and also depends on the temperature of the room where chilling is performed. For chilling, use about 1.5 pounds to 1.75 pounds (.7–.8kg) of ice per bird. This is where the water in your chill tank is about 35°F (2°C) and where room temperature is 68–77°F (20–25°C). To maintain birds in a cooler, use 10–15 pounds of ice (4.5–6.8kg) in a tray of say 20 birds.

You will probably need two workers to ice, make boxes, pack boxes, weigh and stack or load. A foreman should handle one of these positions as packing twenty boxes of birds per hour is not a full-time job for one person. Be sure to train one of these people and make them responsible for assuring birds are properly chilled.

You will need two wheel trucks for moving coops and ice boxes. You may want to purchase small tables to facilitate your operation after you have had some experience. You may want to leave more space than is shown Exhibit 2 between the killing line and the door. You may need more space to weigh live coops, hang and kill depending on your operation. We also recommend our electric stunner to reduce death shudder and carcass damage. To keep your stainless looking bright, mineral oil is excellent for cleanup.

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### EXHIBIT 1

#### LABOR REQUIREMENTS TO PROCESS

#### 1000 TO 1200 BIRDS PER HOUR USING SKILLED LABOR

1. Unload coops ~ hang on kill line/stun-bleed birds	4 - people
2. Scald	1 - person
3. Picker	1 - person
4. Cut hocks/oil gland	2 - people
5. Hang evisceration conveyor/pull crop	2 - people
6. Open tail/pull vent (J cut)	2 - people
7. Pull entrails separating giblet mass	2 - people
8. Separate giblet mass/pinch gall/trim heart	1 - person
9. Split/wash/trim gizzard	1 - person
10. Peel gizzards/tend to giblets	1 - person
11. Remove lungs/wash cavity	1 - person
12. Remove head/remove neck/carcass wash	1 - person
13. Supervisor/work chill tanks/inspection	1 - person
14. Packaging/general help	2 - people
<b>TOTAL</b>	<b>22 - people</b>

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**EXHIBIT 2**  
**1200 BIRDS PER HOUR**  
**POULTRY PROCESSING PLANT**

