

INTRODUCTION
SUPERIOR OSTRICH
BEGINNING TO END

This document is intended to serve as an outline for the routine processes and procedures and a typical “road map” of the lifespan of the Superior Ostrich biological assets.

Operations are divided into various stages of the ostrich development: cooler room, incubator, hatcher, grow-out/holding, and breeder.

Section One – Taxonomic Details

The first section describes the taxonomic details of the ostrich genus. For the information of the reader, the Superior Ostrich population is among three (3) different subspecies: (a) S.c. camelus, (b) S.c. masaicus, and (c) S.c. molybdophones. Please note, for the case of Superior Ostrich, S.c. australis have limited physical characteristics, including height, weight, and meat quality, that are inconsistent and impair our object of harvesting meat, and S.c. syriacus is extinct.

	RATITE	Generic Name	Habitat	Distinguishing
Superior Order	Palaeognathae			
Group	Paraphyletic			
Family	Struthionide			
Genus	Struthio			
Species	Struthio camelus (S.c.)			
Subspecies	S.c. australis	Southern Ostrich	South of the Zambezi River	Black Feathers – Male
	S.c. camelus	Red-necked Ostrich	Ethiopia/Sudan west to Senegal/Mauritania	Red-neck/Thighs – @ Mating Season – largest of all subspecies
	S.c. masaicus	Masaic Ostrich	Kenya, Tanzania, Southern Somalia	Neck/Thighs – Orange @ Mating Season
	S.c. syriacus	Arabian Ostrich	Arabian Peninsula, Syria, Iraq, Iran	Extinct 1966
	S . c . molybdophones	Somali Ostrich	NE Kenya – overlaps Masai Ostrich	Grey/Blue – Male Bright Blue – Mating Season – Female Brown feathers

Source: www.newworldencyclopedia.org/entry/ostrich

Of note: Other Ratite subspecies: Australian Emu and Cassowary, South American Rhea, and New Zealand Kiwi

Section Two immediately below provides graphic information on the various cycles of life.

Next, Section Three describes each cycle, including photographs depicting the ostrich during the described cycle.

Section Four outlines the feeding requirements of each stage during the ostrich's life.

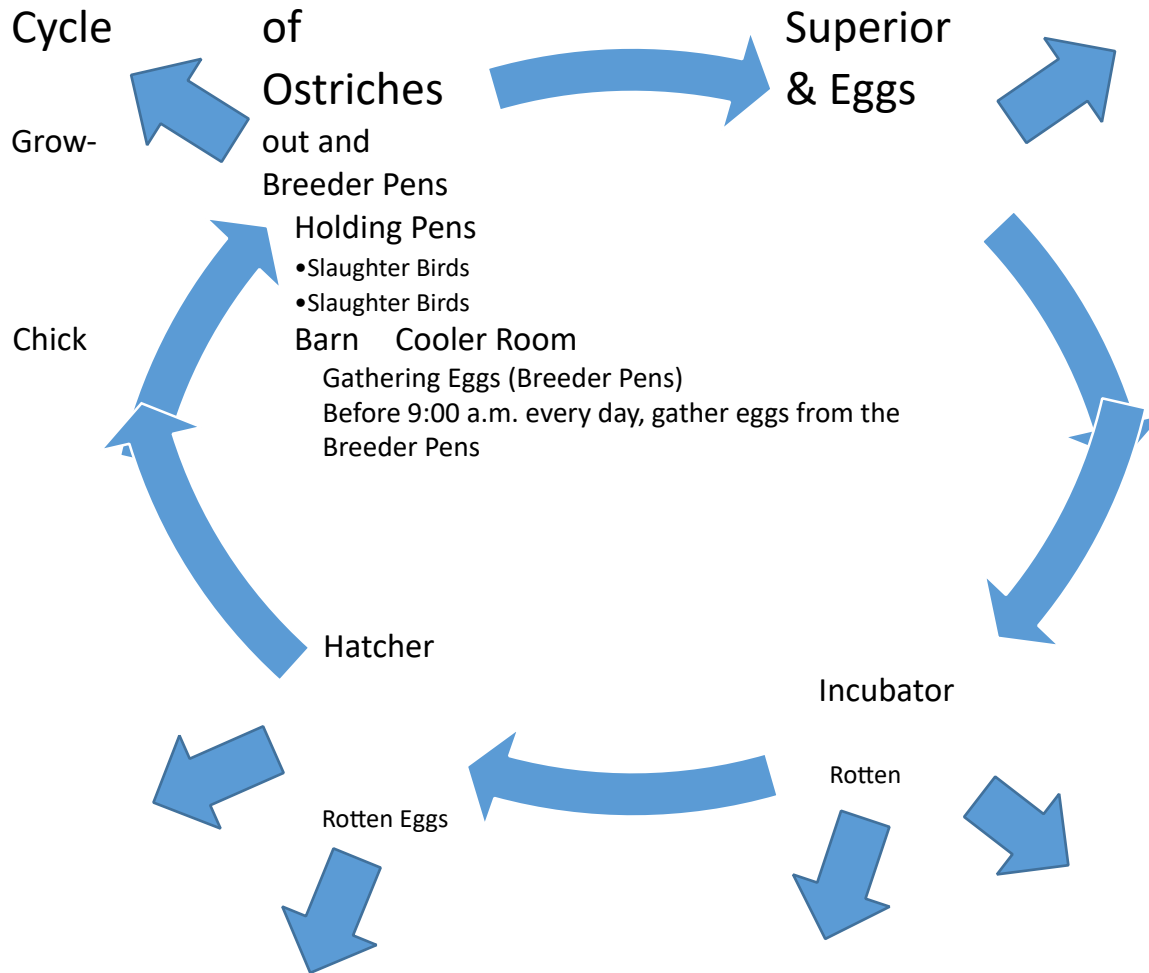
Section Five involves collectively the Slaughter Facility and Fulfillment Center. Before beginning this complete narrative, a brief understanding - our Ostrich Biological Assets represent the backbone of our business proposition. These assets provide four (4) streams of revenue for Superior Ostrich Inc.: (a) Ostrich Meat products, (b) Ostrich Hides, (c) Ostrich Feathers, and (d) Ostrich Offal products (listed here in order of importance). Currently, Ostrich Meat products account for 80-90% of our revenue, requiring further explanation. Other revenue sources are under study involving ostrich bodily parts that may be transplantable to humans and will be funded in subsequent periods.

The single most important segment of our Ostrich population for revenue production involves birds representing our Slaughter population. Of course, Chicks, Juveniles, and pre-adult birds are the source of supply for the propagation of our flock, but eventually, they must become either a "Breeder" bird or "Slaughter" bird. Unfortunately, the balance between these two populations is complicated because Slaughter birds are eligible for Slaughter between 9 and 13 months of age and Breeder birds do not reach sexual maturity until 3 years of age. Further complication is after 13 months of age Slaughter birds reach an economic point of "diminishing returns" if not subsequently transferred to Breeder stock.

Our male/female population, like all others is generally equal, however, the overwhelming majority of Slaughter birds are male – only the breeders are both sexes. The reason is that male breeders involve between 2 and 4 females each during the breeding season (generally between February and October of every year), ultimately a significantly smaller population of juveniles and pre-adults must be designated breeder stock at least 2 years before their suitability for breeding is determined. However, the necessity to preserve almost all pre-breeding female stock as breeders is the determinate factor. Fortunately, our staff has had 30 or more years making these kinds of decisions, and on balance, the increasing population size of our flock confirms the validity of our breeding and slaughter programs.

The final Section 6 contains Supplementary Information on nutrition and dietary metrics for all sources of protein.

Section Two – Ostrich Lifecycle



Section Three – Egg Collection

During the mating season (typically February through October), Ranch Hands visit each breeding pen (sometimes referred to as a “campsite”) to collect eggs laid during the prior day, day/time stamping each egg, including specific breeding pen location, thereafter placed in a “transport” container. (Occasionally some birds reach reproductive prematurely – less than three (3) years of age – and eggs are often found in the pre-breeding general pasture areas.)

A breeding male ostrich prepared a nesting site. The photo represents a typical nest populated with eggs. (Please note, one nesting location can be populated with eggs from multiple females.)



Also, when the outside air temperature is predicted to reach the mid-90s or higher, a second ostrich egg search is performed before the end of the workday. Leaving an egg in the heat of that temperature range can start the premature development of the embryo inside. Subsequently, all marked eggs are placed in the cooler room at the end of every search.

Section Three - Cooler Room



The cooler room maintains an air temperature of 60 degrees Fahrenheit or less and is emptied every 4 to 5 days. Studies indicate a waiting period before incubation is beneficial, but not necessary. Our current production rate and labor are best managed by processing the eggs during this time interval.

Section Three – Incubator

Eggs are taken from the cooler room to the incubator, closely inspected, cleaned, logged in, candled, batched, and placed in racks. The results are recorded contemporaneously on a proprietary corporate spreadsheet. The rack is then put in the incubator for 38-40 days.



During the incubation process the incubator maintains the eggs at an ambient temperature of 97.3 to 97.5 degrees Fahrenheit and 20% humidity, rotating the eggs every 4 hours. This rotation promotes the proper orientation of the embryo and prevents it or the yolk from sticking to the shell. The incubator is opened daily to inspect the eggs with a particular note to “smell”. If a foul odor is detected, that indicates a rotten egg. A bad (rotten) egg can be identified by the odor - the visual signs include a seeping, weepy shell. Rotten eggs are removed and bagged in an air-tight bag for disposal and any residual is cleaned from the other eggs and incubator. Rotten eggs have no use. The removal of any egg is recorded in the corporate spreadsheet.

After 2 weeks in the incubator, the eggs are candled to check for fertility. (The Candling process determines if the egg is fertile – infertile eggs are cleaned, emptied, and processed for sale to hobby and craft shops and artists.) Infertile eggs are removed from the incubator, entered into the spreadsheet, and processed accordingly. Fertile eggs are returned to the incubator.

Eggs typically hatch (described as “pipping”) approximately 42 days from the start of incubation. Several times during the pipping season, when the cycle allows, the interior of the incubator is cleaned and fogged with disinfectant for 2-3 hours and then allowed to dry before using for the next batch of eggs.

The following photos represent eggs in the “pipping” process.



Section Three – Hatcher

At 40 days, the eggs are removed from the incubator and taken to the hatcher. The hatcher is a separate area, kept under similar temperature and humidity conditions to the incubator but without movement.

After the first bird appears from the batch, the other eggs are candled to check for pipping. Pipping is when the chick has punctured the air sack inside the shell, accessing about 24 hours of air to breathe while it works to break a hole in the shell.

The picture below demonstrates the beginning process of hatching (pipping).

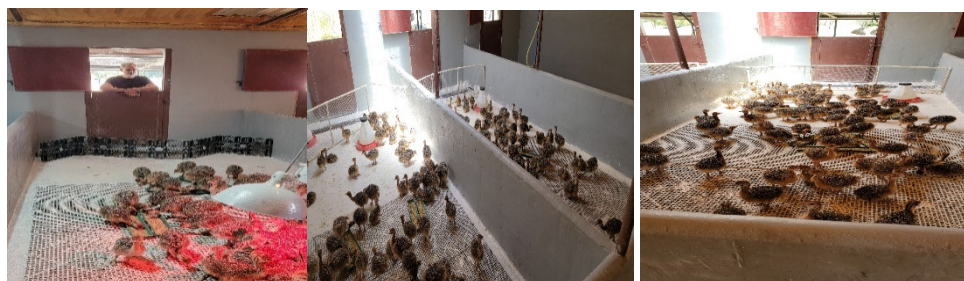


Once a hatchling breaks the shell, the “pipping” process should be complete in 15 minutes to 4 hours. Once the hatchling has “pipped”, senior staff inspect the umbilical cord. If not detached, the hatchling is removed from the hatcher to cut the umbilical cord. To discourage infection, the cord is cut close to the hatchling where the blood flow has stopped, and the naval is disinfected with an iodine scrub. Thereafter, the hatchling is identified with a chip/tag and returned to the hatcher. This information is recorded in the spreadsheet. The broken shell is cleaned of the membrane and debris and deposited in a salvage container to be used as a mineral supplement for breeder birds.

The chick will remain in the hatcher for 1 to 4 days feeding on the egg yolk sack that was absorbed by it before hatching. The hatchlings are then moved into the chick barn when capable of standing and maneuvering. After chicks from that batch have hatched and been moved to the chick barn, the hatcher is cleaned, sanitized, and disinfected. Any towels used as bedding will be laundered.

Section Three - Chick Barn

In the chick barn, the birds remain in batches and are placed in a pen. Each pen is provided with a heat source, freshwater, and chick feed. The chicks are kept inside the barn during the night while roaming inside and out during the daylight to develop muscle. Several times a day the chicks are monitored for proper behavior, eating, and drinking habits. The newborn chicks consume less chick feed than those only a few weeks older, as their feeding actions are more of a learning process than a way to gather nutrition. A green pan seems to attract the younger birds to food. Feed is replenished three times a day, with any uneaten food from the youngest birds given to older birds in the chick barn. Any mortalities are recorded in a spreadsheet.



The above pictures of hatchlings in the chick barn are described as a “chick nursery”.

Section Three - Grow-out Pens

Chicks remain in the “chick nursery” for a short period – up to 4 weeks. Thereafter are moved to outdoor “grow out” pens constructed for juvenile birds, generally retaining separation between chicks and two levels of juveniles, one from 3 to 6 months in age and another from 6 to 9 months in age. In these pens “grow-out” birds continue to mature in a closely controlled environment while being monitored less often. The birds’ diet is changed from the chick feed to an adult mix (see Section 4 below). Food is provided as much as the birds will consume with little waste or spoilage, typically enough for 2 to 3 days.

After 9 months of age, juveniles are introduced to a “pre-adult” population, moving into larger pens to continue to maturation, ultimately to be identified as breeder or slaughter birds. The later stage “grow-out” birds are fed an adult mix but encouraged to forage on existing vegetation. “Grow-out” birds need to be monitored for “feather pecking”, a condition in which stronger birds target a weaker bird and peck at its feathers. A feather-pecked bird needs to be separated from the flock to be diagnosed and treated before damage to the hide or death occurs.



The above pictures represent birds in the early juvenile stage of life showing both feeding with an indoor enclosure and outdoor environment.

Section Three - Breeder Pens

The birds selected as breeder birds are sorted into groups consisting of one male and between two and four females (depending on the age, vitality, virility, and experience of the Male) and placed in breeder pens as available. Experience has shown that 300’ by 100’ breeder pens are ideal to maximize egg production, but any 30,000 sq. ft. configuration is sufficient. The female breeders will usually lay 7 eggs, one every other day, referred to as an “egg-laying cycle”.

The breeders are fed the breeder mix. The birds’ egg production is monitored, and the feed is adjusted according to the “egg-laying cycle”. During the lull in their “egg-laying cycle”, the birds’ liquid protein may be halved and mineral supplements added to replenish nutrients lost during egg production. The breeding ostriches benefit from diatomaceous earth being added to nesting areas and feed. They will return to the normal breeder adult mix when laying resumes. Once the breeder birds no longer produce, they become slaughter birds and are replaced with another breeder. The slaughter birds are pastured in groups determined by land availability and fed the adult mix of feed.



Above pictures represent typical outdoor feeding environment.

Before 9:00 a.m. every day, eggs are gathered from the Breeder Pens and marked with the breeding pen number where it was found and placed in appropriate containers to be transferred to the cooler room for the beginning of another cycle.



Above pictures represent typical “breeder pen” (“campsite”) environment. The lower picture depicts several male birds grazing.

Section Three - Miscellaneous

All About Batching Eggs

Why do we batch?

Batching eggs is a process in which each egg removed from the cooler room is washed, candled, weighed, numbered, and placed into an incubator rack. These batched eggs are kept together until the

developing embryos reach maturity. Batching helps to easily identify and track the hatchlings in the field.

Why do we wash?

Due to exposure to the elements the eggs can become muddy, exposed to feces and other contaminants. Washing keeps these contaminants from entering the incubator, promotes the healthy development of the egg, and sanitizes the unfertile eggs for eventual human use or consumption.

Why do we candle?

After two weeks in the incubator eggs are candled to determine fertility. Unfertile eggs appear clear, while fertile eggs have a dark shape inside, representing the yoke. Unfertile eggs are either used for human consumption, blown out for craft shells, or used in feed mixes.

Why do we number eggs?

The egg number allows us to identify which breeder pen produced the egg and when the egg entered the incubator building. The first part of the number will be used to track the performance of birds in the pen. This information will then be used to help sort the birds who may become good producers from those who would be better suited for human consumption. Infertile eggs usually indicate an issue with the male from the pen, while a lack of eggs indicate problems with the female. The second part of the number is an individual identifier used to track the egg until hatching.

Why do we weigh?

We weigh the egg to ensure it is losing sufficient water weight - inadequate weight loss indicates an improper humidity setting in the incubator. A chick should lose 12-15% during hatching.

Why do we record this information?

Written records provide us with a history of not only the egg but the parentage and will help to reveal patterns that might otherwise not be seen. The spreadsheet allows us to record any significant conditions associated with the batch, such as weather, or anything else that might be out of the ordinary that might be forgotten during the incubation and hatching period. This data will be entered into an electronic database for record-keeping and further analysis.

Section Four – Feed Formulations

Cooler Room Stage

No feeding is required.

Incubator Stage

No feeding is required.

Hatcher Stage

Ostriches recently hatched (1 to 4 days old) remain in the Hatcher and feed on the egg yolk absorbed into the chick through the naval. No additional food or water is required at this point. After leaving the hatcher, the birds are always provided with a source of clean, fresh water.

Chick Barn Stage



In the chick barn feed a Ratite Starter “Free-choice” until approximately 4 months. “Free-choice” is a method of feeding livestock in which various feeds are kept constantly available - feeders are allowed to balance their own diet. Superior Ostrich uses Mazuri CS Regional Ostrich Starter Crumble.

Granite grit is added to the feed to help decrease the risk of impaction by strengthening the developing gizzard.

A ground alfalfa hay is provided “Free-choice” as a forage in the Chick Barn. Superior Ostrich uses a New Holland 357 Grinder Mixer to produce this from bales of alfalfa hay. Hay is ground in batches sufficient to feed for a week and stored in 32-gallon containers. Clean, fresh water is always provided.

Example of a Grinder Mixer

Grow-out Pen Stage

After leaving the chick barn, from approximately 4 months old until breeding Juveniles are feed an adult mix “Free-choice”. Superior Ostrich’s Adult Mix consists of a pelletized feed such as Mazuri Ostrich Grower/Maintenance #5585, mixed with chopped alfalfa hay and a liquid protein at the following ratio: ½ a mid-square (3’x3’x8’ bale) of alfalfa hay, weighing between 900 to 1,000 lbs. chopped (using a Patz bale chopper); ½ bag (35”x35”x55”) of grower/maintenance feed, approximately 800 lbs.; and 1 “bar” of liquid protein, approximately 50 gallons; per 1 Oswalt 333 TMR Mixer Wagon. Always provide a source of clean, fresh water.

Slaughter Bird/Holding Pen Stage

These animals are fed the Adult Mix "Free-choice", with the amount of food adjusted to how much the birds can consume in 2 to 3 days. To reduce spoilage, the feed amount is reduced if rain is predicted, and feeding occurs daily until the risk of rain subsides.

A clean source of fresh water is always provided.

Breeder Pen Stage

Breeders are fed the breeder mix "Free-choice". Superior Ostrich's Breeder Mix consists of a pelletized feed such as Mazuri Ostrich Breeder #5586, mixed with hatcher shells, chopped alfalfa hay, and a liquid protein at the following ratio:

½ a mid-square (3'x3'x8' bale) of alfalfa hay, weighing between 900 to 1,000 lbs. (chopped using a Patz bale chopper);

½ bag (35"x35"x55") of breeder feed, approximately 800 lbs.;

Portion of hatcher shells (serves as a calcium supplement);

2 "bars" of liquid protein; and

approximately 100 gallons per 1 Oswalt 333 TMR Mixer Wagon.

Clean, fresh water with the mixture is required.

Section Five – Slaughter Facility/Fulfillment Center Operations

Reference to the Holding Pen in Section Four – Feed Formulations also involves an additional “holding pen” at the slaughter facility where our birds remain for 24, up to 72 hours, before slaughter to remediate/resolve stress-related hormone secretions that could be detrimental to the quality and taste of the meat after slaughter. In all cases, the feed regimen provided to the designated slaughter birds remains the same while sequestered at the slaughter facility before slaughter.

Our contracted slaughter facility, Ft. Worth Meat Packers, located adjacent to the Ft. Worth Stockyards in Ft. Worth, TX has full FDA and USDA approvals and certifications. Our commitment to quality – no antibiotics or added hormones all all-natural. Certifications include USDA Certified Frozen Meat Meat Products, Free Range Products, Regenerative Farming Practices, Holistic Livestock Management, and Natural Habitat Ranch Design.



The above photo records the results of our Slaughtering operations. That begins the process of flash-freezing all of our meat products, which can be seen in their finished packaging below. Of course, at this stage of slaughter, in addition to the completed carcass, hides from each bird are harvested and stored until a tanning process is initiated, and Offal is stored where it can be ground or sold as a food/nutritional supplement for dog food and/or bedding.



Our Fulfillment Center, Frozen Logistics, located in Tyler, TX nearby the Slaughter Facility are both under long-term contract with Superior Ostrich. Both are within 100 miles of our ranch in Valley Mills, TX. All frozen ostrich meat products are stored and inventoried at the Fulfillment Center. All purchases of the ostrich meat products and Offal products are under the direct control of the Fulfillment Center.

Section Six – Supplementary Information

A chart detailing nutritional and dietary information of most animal sources of protein, including Beef, Bison, Pork, Lamb, Turkey, and Chicken follows. More details concerning this information or directly related to may be found in the comprehensive Investor Presentation previously provided to the reader simultaneously with this document.