State of Illinois

Department of Agriculture

Illinois Standards for Shell Eggs & General Information

Division of Food Safety & Animal Protection
Egg Inspection Program

Illinois Department of Agriculture

The standards and information in this booklet are a combination of the laws enacted by the Illinois Department of Agriculture found in the Illinois Egg and Egg Products Act Rules & Regulations and the United States Department of Agriculture's rules and regulations governing shell eggs. If further information is needed, please contact the Division of Food Safety & Animal Protection/ Egg Inspection Program – 217-524-1550.

Illinois Standards for Quality of Individual Shell Eggs

The Illinois standards for quality of individual shell eggs are applicable only to eggs that are the product of the domesticated chicken hen and are in the shell. Such standards are with respect to individual eggs with clean or dirty unbroken shells, and checked or cracked shells.

Standards of quality have been developed as a means of classifying the individual eggs according to various groups of conditions and characteristics that experience and research have shown to be wanted by consumers and for which they are willing to pay. Grades differ from standards in that they provide tolerances for individual eggs within a lot to be lower quality than the grade name indicates.

Quality factors may be divided into two groups; exterior quality factors, apparent from external observation; and interior quality factors, which involve the contents of the egg.

Interior egg quality specifications for these standards are based on the apparent condition of the interior contents of the egg as it is twirled before the candling light. Any type or make of candling light may be used that will enable the particular grader to make consistently accurate determinations of the interior quality of shell eggs.

Illinois Department of Agriculture
Division of Food Safety & Animal Protection
Egg Inspection Program
P.O. Box 19281
Springfield, IL 62794-9281

For more information please call:
217-524-1550
217/524-6858 TTY

Printed by Authority of the State of Illinois
#16-074/3-16/250 copies

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SUMMARY OF ILLINOIS STANDARDS FOR QUALITY OF INDIVIDUAL SHELL EGGS

Specification for Each Quality Factor

Quality Factor	AA Quality	A Quality	B Quality
	Clean	Clean	Clean; to slightly stained. *
Shell	Unbroken.	Unbroken.	Unbroken.
	Practically normal.	Practically normal.	May be slightly abnormal.
	1/8 inch or less in depth.	3/16 inch or less in depth.	Over 3/16 inch in depth.
Air Cell	May show unlimited movement and may be free or bubbly.	May show unlimited movement and may be free or bubbly.	May show unlimited movement and may be free or bubbly.
	Clear	Clear	Weak-watery
White			
	Firm	May be reasonably firm.	Small blood or meat spots present. **

* Moderately stained areas permitted (1/32 of surface if localized, or 1/16 of surface if scattered.)
** If they are small (aggregating not more that 1/8 inch in diameter.)

SUMMARY OF ILLINOIS STANDARDS FOR QUALITY OF INDIVIDUAL SHELL EGGS

Specification for Each Quality Factor continued…

	Outline Slightly Defined.	Outline fairly-well Defined	Outline plainly visible.
Yolk	Practically free from defects.	Practically free from defects.	Enlarged and flattened.
			Clearly visible Germ development but not blood. Other serious defects.

For eggs with dirty or broken shells, the standards of quality provide three additional qualities. These are:

Dirty	**Check**	**Leaker**
Unbroken. May be dirty Prominent Stains.	Checked or cracked but not leaking	Broken so contents are leaking.
Moderate stains in excess of B quality.		

INTERIOR QUALITY FACTORS

Air Cell

When the egg is first laid it has no air cell at all or only a small one. Its temperature is about 105° F. and as the egg cools to room temperature the liquids contract more than does the shell. As a result of this contraction, the inner shell membrane separates from the outer to form the air space.

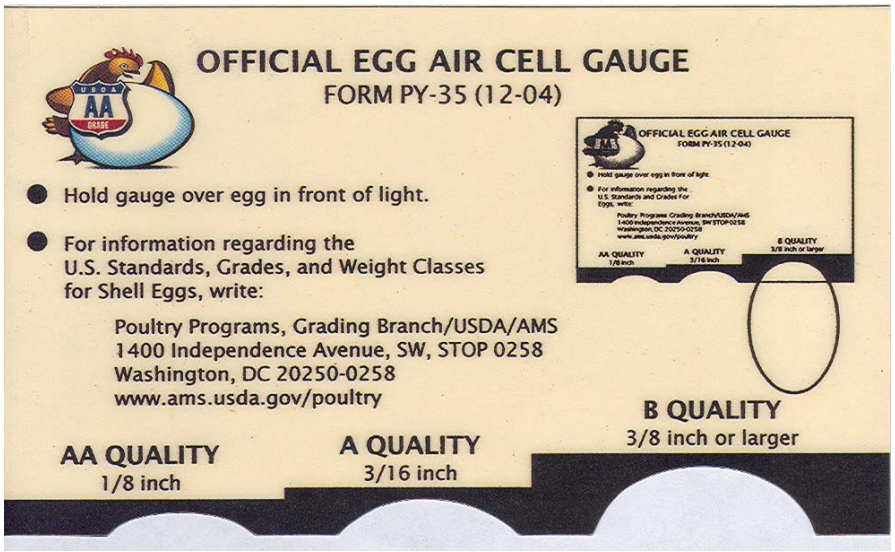
Further increase in the size to the air cell beyond that resulting from contraction is due to evaporation of water from the egg. The rapidity with which this takes place is due to many factors, such as shell texture, temperature, and humidity.

The air cell is normally at the large end of the egg and is one of the first factors observed in candling.

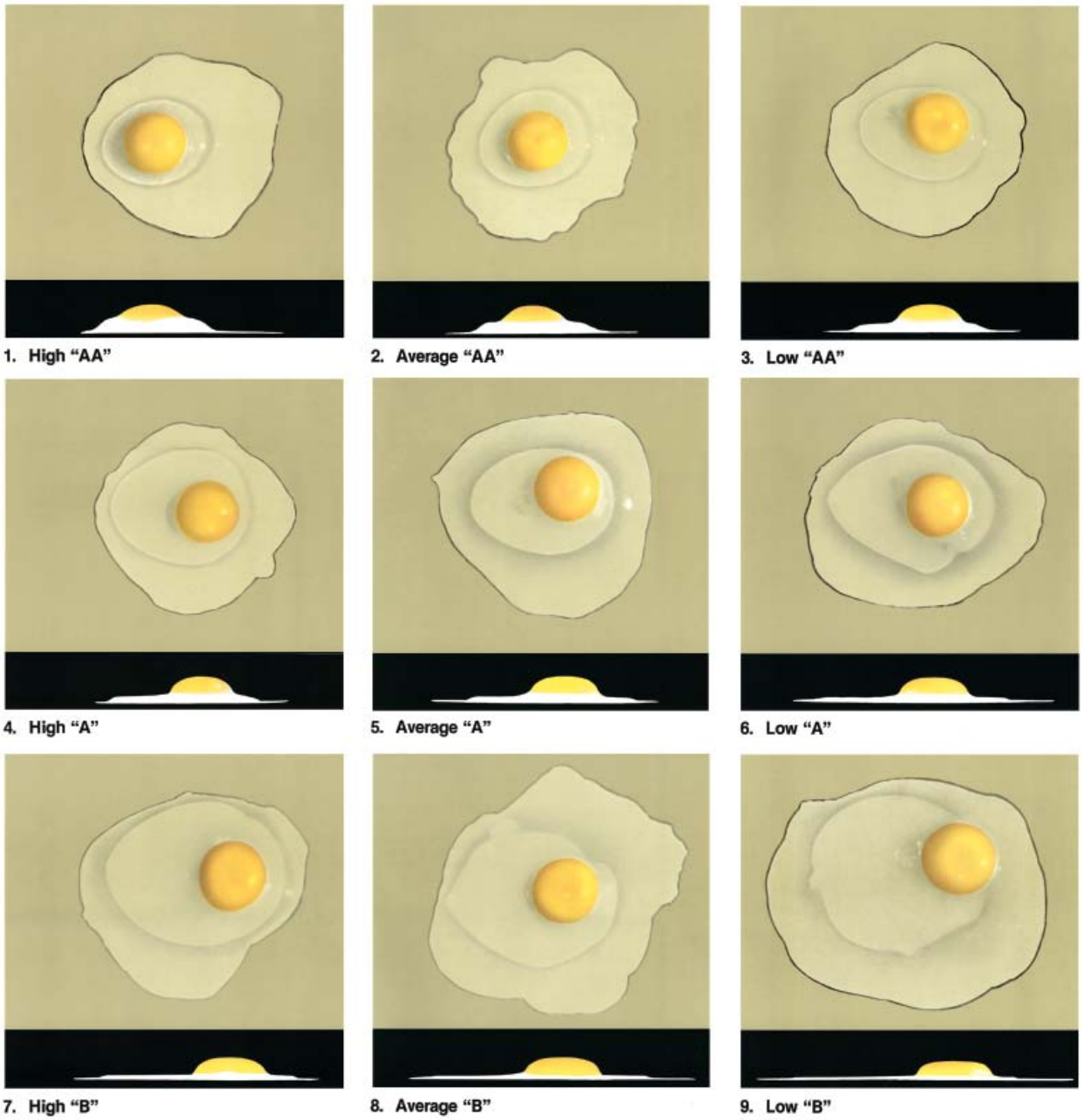
The air cell is perhaps the one quality factor that is easiest to evaluate as it can be judged objectively by a simple measuring device – the air-cell gauge. In candling, the air cell is considered by many as a relatively unimportant quality factor for determining the broken-out quality of an egg.

However, the air cell is one of the factors of the Illinois standards and, therefore, it can be the determining factor in classifying the individual egg as to quality. Depth is the only quality factor considered with the air cell. Movement is not considered a quality factor, and the air cell may show unlimited movement and be free or bubbly in all qualities (AA, A, B).

GAUGE FOR MEASURING DEPTH OF AIR CELL



INTERIOR EGG QUALITY OF EGGS



A – Egg covers small area much thick white surrounds yolk; has small amount to thin white; yolk round and upstanding.

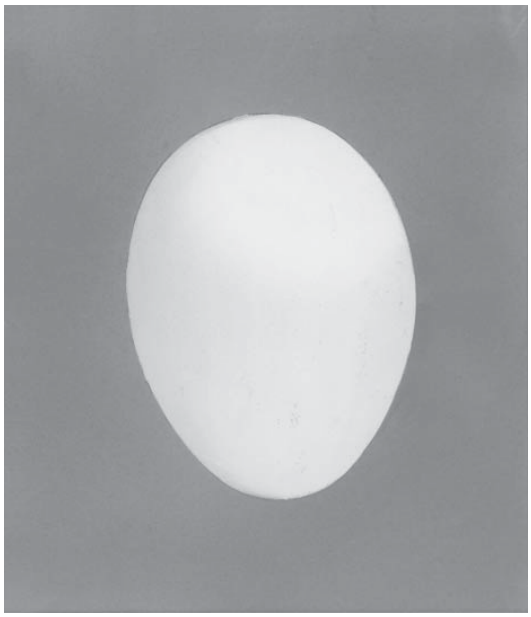
A – Egg covers moderate area; has considerable thick white; medium amount of thin white; yolk round an upstanding.

B – Egg covers wide area; has small amount of thick white; much thin white; yolk somewhat flattened and enlarged.

The pictures on this chart show the interior quality of eggs that meet the specifications of the Illinois standards for quality of individual shell eggs with respect to albumen and yolk quality. Quality factors dealing with the shell, air cell, and defects are not included. Pictures 1, 2, and 3 represent the appearance of broken-out eggs of high, average, and low AA quality; 4, 5, and 6 represent high, average, and low A quality, 7, 8, and 9, high, average, and low B quality.

EXTERIOR EGG SHAPES FOR EACH QUALITY

Shell Shape and Texture: The normal egg has an oval with one end larger than the other, and it tapers toward the smaller end. The ends of an egg are commonly called large end (air cell end) and the small end. The ideal egg shape is illustrated in #1. The shape of an egg can be considerably different from the ideal (#1), but may be considered practically normal. Eggs that are unusual in shape may have ridges, rough areas, or thin spots (# 4).



1. Ideal egg shape, usually found in AA or A quality.

2. Practically normal shape which may be found in AA or A quality.

3. Practically normal shape, showing slight ridges and rough shell permitted in AA or A quality.

4. Abnormal shape having pronounced ridges and/or thin spots.

TABLE I – SUMMARY OF U.S. CONSUMER GRADES FOR SHELL EGGS

Consumer Grade (origin)	Quality required (1)	Tolerance permitted (2) Percent	Quality
Grade AA	87 percent AA.	Up to 13 Not over 5	A or B. (5) Checks. (6)
Grade A	87 percent A or better	Up to 13 Not over 5 . .	B. (5) Checks. (6)
Grade B	90 percent B or better.	Not over 10	Checks.
Consumer Grade (destination)	**Quality required (1)**	**Tolerance permitted (3) Percent**	**Quality**
Grade AA	72 percent AA.	Up to 28 (4) Not over 7	A or B. (5) Checks. (6)
Grade A	82 percent A or better	Up to 18. Not over 7	B. (5) Checks
Grade B	90 percent B or better.	Not over 10	Checks.

1. In lots of two or more cases, see Table II of this section for tolerances for an individual case within a lot.
2. For the U.S. Consumer grades (at origin), a tolerance of 0.50 percent Leakers, Dirties or Loss (due to meat or blood spots) in any combination is permitted, except that such Loss may not exceed 0.30 percent. Other types of Loss are not permitted.
3. For U.S. Consumer grades (destination). A tolerance of 1 percent Leakers, Dirties or Loss (due to meat or blood spots) in any combination is permitted, except that such Loss may not exceed 0.30 percent. Other types of Loss are not permitted.
4. For U.S. Grade AA at destination, at least 10 percent must be A quality or better.
5. For U.S. Grade AA and A at origin and destination within the tolerances permitted for B quality, not more than 1 percent may be B quality due to air cells over 3/8 inch, blood spots (aggregating not more than 1/8 inch in diameter), or serious yolk defects.
6. For U.S. Grades AA and A Jumbo size eggs, the tolerance for Checks at origin and destination is 7 percent and 9 percent respectively.

TABLE II TOLERANCE FOR INDIVIDUAL CASE WITHIN A LOT

Illlinois Consumer Grade	Case Quality	Origin	Destination
Grade AA Quality		Percent	Percent
	AA. (min)	77	62
	A or B	13	28
	Check (max)	10	10
Grade A.....	A (min)	77	72
	B	13	18
	Check (max)	10	10
Grade B	B (min)	80	80
	Check (max)	20	20

U.S. WEIGHT CLASSES FOR CONSUMER GRADES FOR SHELL EGGS

Size or weight class	Minimum net weight per dozen (ounces)	Minimum net weight 30 per dozen (pounds)	Minimum net weight for individual eggs at rate per dozen (ounces)
Jumbo	30	56	29
Extra Large.....	27	50 1/2	26
Large	24	45	23
Medium	21	39 1/2	20
Small	18	34	17
Peewee.....	15	28	. . . . .

A lot average tolerance of 3.3 percent for individual eggs in the next lower weight class is permitted as long as no individual case within the lot exceeds 5 percent. There are no weight tolerances for dozen egg cartons.

A FEW FACTS ABOUT EGGS

1. Eggs are one of nature's most complete foods, containing all essential health protection vitamins except Vitamin C. The yolk is especially rich in Vitamin A and D.
2. Age alone is not an indication of freshness. Experiments show that eggs held only three days at 99.6 °F. showed the same amount of deterioration as eggs held 100 days at 37.6° F.
3. The color of the eggshell has no relation to the food value or cooking performance of the egg.
4. High quality eggs attract customers – low quality drives them away.

PROCESS OF CANDLING

Candling consists of examining each egg separately in a darkened room by means of a device known as an egg candler that permits rays of light to pass through an egg, and as the egg is turned, to reveal its interior characteristics. Candling is by no means an exact science or art but is the best method available for determining the condition of eggs without breaking them, and its use is almost universal.

In hand candling, two eggs are taken in each hand. One egg is held with the large end up and in an inclined position before the opening in the candling device. While held in this position, the egg is given a quick twist to turn on its long axis. This sets the yolk in motion and permits the appearance and behavior of the yolk to be noted. After one of the eggs in one hand is examined, an egg in the other hand is placed before the candle, and in the meantime, the position of the two eggs held in the first hand is reversed. In this way, the eggs are alternated before the candling light until all four have been examined and their quality determined.

In candling it is fairly easy to determine the eggs of high quality and those of very low quality, but it requires skill to differentiate those in the intermediate range. Persons who are skilled in this art, however, are able to grade eggs with reasonable accuracy.

How to hold eggs while candling.

A GOOD EGG

Fresh eggs contain a large percentage of thick white, which causes the yolk to stand up when the egg is broken out.

When eggs become stale both the thick white and the yolk deteriorate with the result that the yolk flattens out and the white appears watery.

High temperatures do more harm to the interior quality of the egg than any factor. In order for eggs to reach the consumer with interior quality good enough to permit them to be sold as "fresh eggs," they must be cooled promptly and kept cool from the time they are laid until they reach the consumer.

The building of confidence of the consumer in her ability to purchase strictly fresh eggs should lead to increased consumption; this in turn will reflect to the advantage of the producer and distributor of eggs. The retailer will benefit through the elimination of unfair competition, which has existed when low quality eggs were offered for sale as fresh eggs, or when eggs were offered at a low price with no indication relative to size.

PERISHABILITY OF EGGS

Unless eggs are handled and kept under good conditions, they may reach a stage at which they are no longer edible in a relatively short time. One of the first indications of deterioration is the evaporation of water from the white through the shell's pores, with the consequent enlargement of the air cell. Other measurable signs include the thinning of the white and the flattening of the yolk.

CONDITIONS INFLUENCING DETERIORATION

When fertile eggs are subjected to temperatures within the incubation range, which begins at as low as 68° F., the germ will begin to develop. This development will take place slowly or more rapidly, depending on how favorable the temperature conditions may be, and may result in a relatively short time in development of the embryo to the point at which blood veins are formed and the egg is no longer edible. Changes normally occurring in eggs proceed much more slowly at low temperatures (29 to 45 °F.) than at high temperature (above 70° F.). Consequently it is desirable to handle and transport eggs at low temperatures. Retailers and consumers also profit by holding eggs at proper temperatures.

Humidity also affects the rate of deterioration. Eggs should be held at a fairly high relative humidity; otherwise, water will evaporate more rapidly from them. However, too high humidity and stagnant air are likely to result in the development of mold on the eggs, quickly making them inedible.

Age has an important effect on egg quality, resulting in chemical as well as physical changes. However, the extent of the effect of age depends greatly on conditions under which eggs have been held. Eggs only a few days old that have held under adverse conditions may be inferior to those several months old that have been held under conditions favorable for their preservation.

WHAT ALL GRADING STATIONS AND PRODUCER-DEALERS SHOULD KNOW ABOUT THE ILLINOIS EGG LAW

License – The annual fee for a full license is $50. A limited license is available to producers for $15, but only if they candle and grade just their own eggs from 3,000 or less birds. A license must be obtained for each business location and may not be transferred.

Inspection Fee – All candled and graded eggs offered for sale or sold in Illinois are subject to an inspection fee. If graded in Illinois, the grading station pays the fee to the State. When candled and graded eggs are brought into Illinois, the owner of the eggs when they cross the State line must pay the fee to the State. The following are exempt: (1) eggs shipped out of State, (2) nest run eggs, (3) restricted eggs sold to breakers, (4) loss eggs. Invoices should show the fee as a separate charge.

Labeling of Consumer-size Containers – Each carton or sleeve must show six points of identification: (1) Grade, (2) Size, (3) and (4) name and address of packer, distributor, or retailer, and (5) legible candling date…expressed as the consecutive day of the year on which determination of grade and size was made (6) Expiration date, Grade AA – 30 days from candling date, Grade A – 45 days from candling date. Eggs sold to retailers must be prepackaged in *new* cartons. Retailers are not permitted to buy loose eggs, package and sell them.

Holding Temperature - 45° F. ambient maximum. 32° F. ambient minimum. Eggs shall be transported at 45° F ambient.

Invoice – When eggs are sold at the wholesale level, an invoice must accompany the eggs, showing the name and address of the seller, the name and address of the purchaser, and the exact grade and size of the eggs sold plus the amount of the inspection fee paid to the State. Both seller and buyer must keep a copy of this invoice on file at their respective places of business for 45 days, subject to inspection.

Nest Run Eggs – All eggs sold by or to retail stores, or purchased by institutional consumers must be candled for quality and graded for size, and no lower than Grade B. Visual reworking of nest run eggs without both candling and grading is not permissible.

Restricted Eggs – no person may sell or give free to anyone, including to an employee, egg classified as checks and dirties, except that such eggs can be sold directly or indirectly to an official egg breaking plant. However, a producer may sell on his own premises, where eggs are produced, direct to household consumers, for such consumer's personal use and his non-paying guests eggs classified as checks and dirties without candling and grading such eggs.

Packaging Material – Only new or good used master cases may be used for the distribution of eggs. Packing material may be new or used provided it is clean and, like the case of sufficient rigidity to prevent damage. Inspectors will reject any lots, regardless of size, if these requirements are not in compliance. Cartons for retail sales must be new.

Sanitation – All facilities and equipment used in candling and grading operations shall be cleared at least daily. If a stale or objectionable odor is present, the inspector will assume that sanitation requirements have not been met.

Weight Classifications – Minimum Net Weight (in ounces) per dozen

Jumbo…..…….30	Extra Large…27	Large……24
Medium……21	Small……..18	Pee Wee…...15

The minimum weight for individual eggs at the rate per dozen is one ounce less. No tolerances are permitted at any level of distribution.

WHAT ALL RETAILERS SHOULD KNOW ABOUT THE ILLINOIS EGG LAW

Packaging – Eggs received by you must already have been prepackaged in new consumer-size containers. No retailers will buy loose eggs and put them into cartons or containers of any kind or sort whatsoever. Master cases in which cartons are delivered may be new or used; provided, they are clean, free of mold, mustiness, odors, etc., and in good strong condition.

Labeling – Each carton or sleeve must show six points of identification: (1) Grade and (2) size of eggs, (3) Name and (4) address of packer, distributor, or retailer, and (5) Legible candling date…expressed as the consecutive day of the year on which the determination of grade and size was made. For example, January 19 would appear as "019" and December 31 as "365" …separate from any codes. (6) Cartons must include an expiration date (in addition to candling dates) and must be within 45 days from the date of candling for Grade A and 30 days for Grade AA. They may be shown only in one of two ways –" EXP, Day, Month or EXP, Month, Day." It is a violation by a retailer if eggs are offered for sale after the expiration date of after 45 days from candling date.

Rotation – The retailer is responsible for maintaining his inventory of eggs properly rotated according to candling dates in both display and storage areas.

Advertising – Eggs shall not be advertised anywhere when a price is stated or implied without designating the claimed grade and size. The wording shall not be misleading or deceptive.

Temperature – From the point of candling and grading, all eggs shall be held at a temperature not to exceed 45° F. Eggs shall be kept from freezing.

Sanitation – Display cases and storage areas must be continuously maintained in a clean and sanitary condition. Eggs must be stored off the floor, but not in the same area with broken eggs, onions, fish and other odor-imparting foods, or with cleaning compounds, pesticides or any other chemicals.

Damaged Eggs – Damage apparently inflicted by the store's patrons will be considered when officially grading eggs from the display; however, if a disproportionate number of undergrades are found, indicating lack of reasonable attention, the inspector will stop sale. Repacking is prohibited.

Cracked and Dirty Eggs – May not be sold or given free to any person, including to an employee.

Size – Minimum Net Weights (in ounces) per dozen are as follows:

Jumbo..……30	Extra Large… 27	Large……..24
Medium……...21	Small ……..18	Pee Wee ……15

NO TOLERANCES PERMITTED

Invoice or other accounting document – Must show (1) Grade and size of eggs, (2) Name and address of supplier, (3) Name and address of your store, and (4) The date and quantity of purchase. For inspection purposes, a copy is to be kept on the premises for 45 days.

WHAT ALL DISTRIBUTORS SHOULD KNOW ABOUT THE ILLINOIS EGG LAW

License – The annual fee for a license to distribute eggs at wholesale is $50. A separate license must be obtained for each business location. Licenses are non-transferable.

Inspection Fee – All candled and graded eggs offered for sale or sold in the State of Illinois are subject to an inspection fee. Invoices on all eggs purchased by you must show this fee as a separate charge. Exemption: if you pick up eggs out of State, you are liable for the fee. If they are brought into Illinois, the shipper is to pay the fee to the State and he must be licensed. Eggs shipped by you out of State are exempt. If eggs are removed from the original case, carton or container, they are now reidentified, and a second inspection fee (same rate as the first fee) shall be paid on the eggs to the Department.

Types of Eggs Handled – You may buy and sell nest run eggs or even edible restricted eggs but only to a licensed dealer or to an official egg breaking plant.

Store Returns – Since the person from whom you purchased candled and graded eggs is responsible for quality and size, you are not permitted to repack these eggs for redistribution to retailers or to institutional consumers. We advise you to remove the leakers and inedibles, then sell to a breaker. Remember, you cannot sell or give away cracked and dirty eggs except directly or indirectly to an official plant under Federal supervision.

Labeling – Damaged eggs may not be repacked. As a distributor, you are directly responsible for the labeling of the master cases and the retail cartons. If these items are not correct, you are expected to refuse delivery from your shipper.

Consumer size containers: Eggs sold by you to retailers must be prepackaged in new cartons. Retailers are not permitted to buy loose eggs and put them into any cartons or containers of any kind or sort whatsoever. Your cartons must show (1) Grade and Size, in min. height of 3/8" (2) Date packed – expressed as an number indicating the exact consecutive day of the year the determination of grade and size was made, in min. height of 1/8". Predating is not permitted. Illegible dates are considered as no dates (3) Identity of either the packer, distributor, or retail store, in min height 1/8" (4) Expiration date - 45 days from the candling date for Grade A eggs and not later than 30 days from the candling date for Grade AA eggs shall be used.

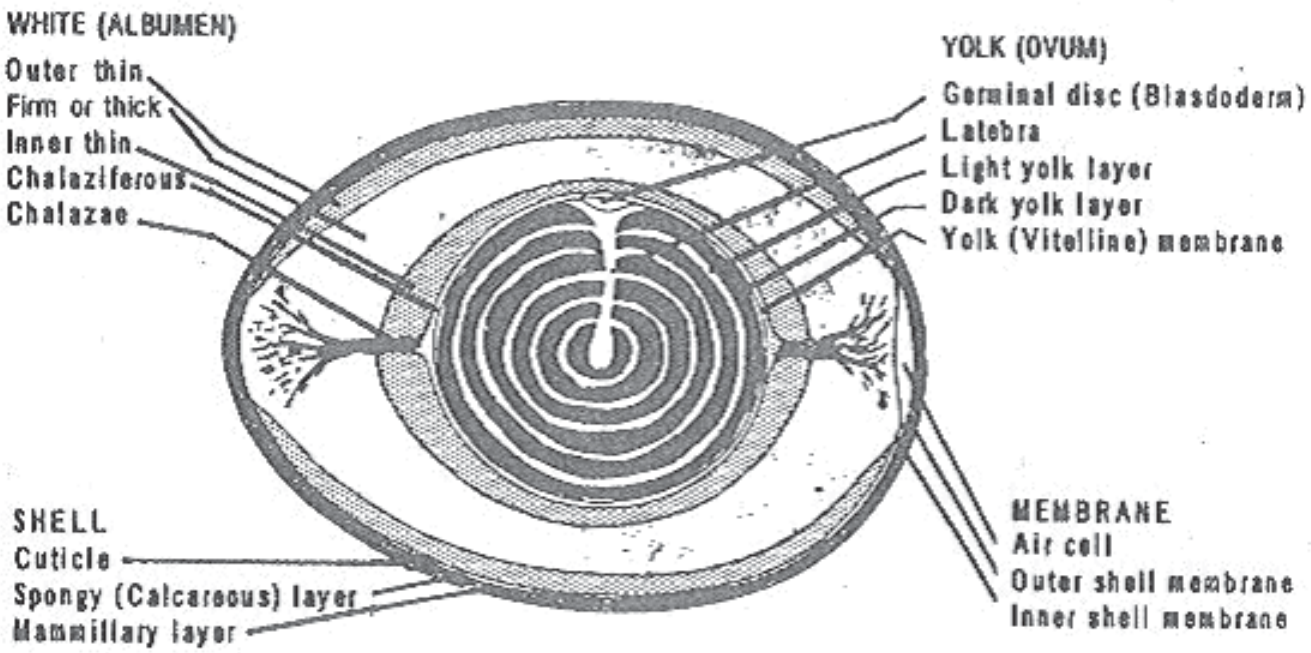
Master cases: All master containers, whether full or partial containing bulk (loose) eggs offered for sale within the State shall bear a label stamped on the container or a removable tag affixed to the container on the top rung showing the following information in a conspicuous manner: 1) Grade & Size - in letters not less than ½ inch in height. 2) Name and address of the packer or Illinois Egg License or USDA plant number or egg license number from another state where eggs were packed, in letters not less than ¼ inch in height. 3) The exact date on which the eggs were candled and graded. This candling date must be legible and accurate and appear in letters and numbers in Julian date code or exact date of pack not less ¼ inch in height. Predating is not permitted. Illegible dates shall be considered as no dates. 4) An expiration date is required on all loose pack master containers. Use of qualifying pre-fixes required by USDA standards is allowable.

No labeling of the case is required if it contains cartons.

Holding Temperatures – 45° F. ambient maximum, 32° F. ambient minimum. Eggs shall be transported at 45° F.

Invoice – When eggs are sold by one licensee to another or to a person for resale, an invoice must accompany the eggs, showing the name and address of the seller, the name and address of the purchaser, and the exact grade and size of the eggs sold according to State grade standards. Both seller and buyer must keep a copy of this invoice on file at their respective places of business for 45 days.

THE EGG



ORGANIC EGGS

Organic production in Illinois is regulated by the National Organic Program and the Organic Production Act of 1990 (USDA website: usda/nop.gov for more information), which set national standards defining organic production. A producer in Illinois wishing to be certified will need to contact a third party federally licensed certifier. On site inspection and land use history is developed and a transition program is put in place in order for the producer to become certified organic. For more information or a list of organic certifiers working in Illinois contact:

The Illinois Department of Agriculture, P.O. Box 19281 Springfield, Il. 62794
or call 217-524-9129 or by email jeff.squibb@illinois.gov

JULIAN CALENDAR

DAY OF THE YEAR CHART

DAY OF MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1	32	60	91	121	152	182	213	244	274	305	335
2	2	33	61	92	122	153	183	214	245	275	306	336
3	3	34	62	93	123	154	184	215	246	276	307	337
4	4	35	63	94	124	155	185	216	247	277	308	338
5	5	36	64	95	125	156	186	217	248	278	309	339
6	6	37	65	96	126	157	187	218	249	279	310	340
7	7	38	66	97	127	158	188	219	250	280	311	341
8	8	39	67	98	128	159	189	220	251	281	312	342
9	9	40	68	99	129	160	190	221	252	282	313	343
10	10	41	69	100	130	161	191	222	253	283	314	344
11	11	42	70	101	131	162	192	223	254	284	315	345
12	12	43	71	102	132	163	193	224	255	285	316	346
13	13	44	72	103	133	164	194	225	256	286	317	347
14	14	45	73	104	134	165	195	226	257	287	318	348
15	15	46	74	105	135	166	196	227	258	288	319	349
16	16	47	75	106	136	167	197	228	259	289	320	350
17	17	48	76	107	137	168	198	229	260	290	321	351
18	18	49	77	108	138	169	199	230	261	291	322	352
19	19	50	78	109	139	170	200	231	262	292	323	353
20	20	51	79	110	140	171	201	232	263	293	324	354
21	21	52	80	111	141	172	202	233	264	294	325	355
22	22	53	81	112	142	173	203	234	265	295	326	356
23	23	54	82	113	143	174	204	235	266	296	327	357
24	24	55	83	114	144	175	205	236	267	297	328	358
25	25	56	84	115	145	176	206	237	268	298	329	359
26	26	57	85	116	146	177	207	238	269	299	330	360
27	27	58	86	117	147	178	208	239	270	300	331	361
28	28	59*	87	118	148	179	209	240	271	301	332	362
29	29		88	119	149	180	210	241	272	302	333	363
30	30		89	120	150	181	211	242	273	303	334	364
31	31		90		151		212	243		304		365

*LEAP YEAR - Advance all dates after February 29th by one day.