


From Last Time:

Exam 1

Results will be posted soon...



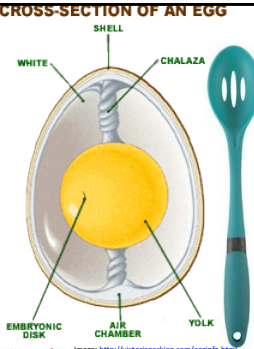
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Fall 2016 – Bodwin/Tigges

Eggs

Shell
Calcium carbonate

White
Albumin (protein)
Thick and thin

Yolk
Fat
Lecithin (emulsifier)



http://www.youhub.com/recipe/5944.html_01
image: http://victoragpack.com/egginfo.html
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Eggs

Fresher Eggs
Thick albumen
Prominent chalazae
Sink in water

Aging...
Albumen & chalazae
break down
Air bubble grows...

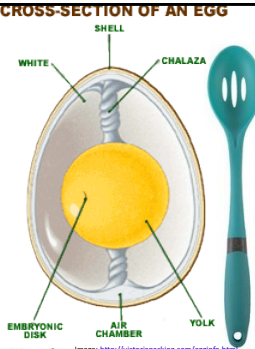


image: http://victoragpack.com/egginfo.html
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White or brown?

Shell color is largely meaningless
Indicates breed
Pinks, greens, etc






image: http://www.whitemonfarm.com/eggs
image: http://www.themoonandherd.com/613/how-to-raise-chickens-to-lay-eggs
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Eggs and Chickens

“Indeterminate layers”
~25 hour cycle (industrial)
200-300 eggs per year
2-3 year laying “lifetime”






image: http://www.motherschoice.com/2012/06/12/Best-Chickens-to-raise-Eggs-Backyard-Stock-Eggs
image: http://gardenofeatin.com/wp/wp-content/uploads/2012/08/chickens-dinner/8_US2MCL3yrs
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Eggs

Yolk
Fat, food

White
Shock absorber

Shell
Protection

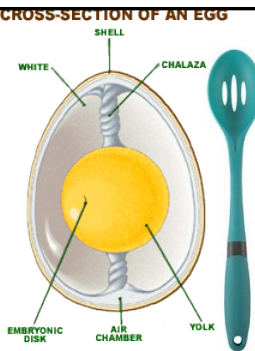


image: http://victoragpack.com/egginfo.html
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Cooking with Eggs

Consider composition

White = protein + water
 "Cooking" denatures protein

Yolk = protein + fat
 and all the other nutrients...



Image: <http://whatiscookingamerica.net/Eggs/BoiledEggs.htm>

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Egg Whites - Whip It!

Foams - Meringue (albumin only)

Review micelles - water/air interface
 Similar in concept to whipped cream or yogurt curdling

Mechanical shearing of protein bundles
 Soft foam - water lubricates bubbles
 Hard/Stiff/Dry peaks - protein bubble walls squeeze out excess moisture

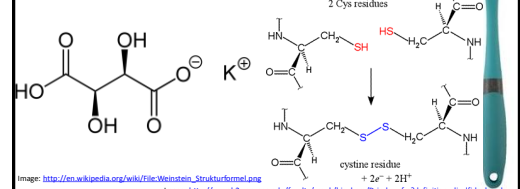
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Cream of Tartar

Potassium tartrate - adds acid

Prevents disulfide bond formation

Proteins need to interact, but not TOO strongly



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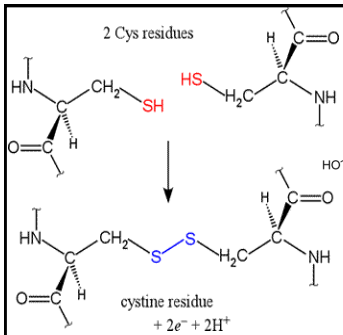


Image: http://web3.gonzaga.edu/faculty/frank/biochem/D-index.cfm?definition=disulfide_bond
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Setting White Foams

Heating dehydrates

Ovalbumin denatures at higher T

Secondary network, reinforces

Role of sugar

Strengthens "cages" with sugar strands
 Delays dehydration (ovalbumin denature)

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Whipped yolks

Fat prevents foam

A little yolk ruins a meringue

Air bubbles lighten color

Low "free" water content

The beginnings of a custard

Network of egg proteins
 Suspends milk fat

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Whipped Whole Eggs

Not as fluffy as whites
Not as silky as yolks
Will they foam?



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Cooking Eggs

Balance of fat, protein, water, air
Water – high heat capacity
Fat – solidifies, liquifies, separates
Protein – denatures or not?
Air – excellent insulator {Why?}



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