

# European Honey Bee - Drone Caste Development Stages

Robt Burns Handout 3/02/2017

	Day	Stage			
Egg is laid	1	egg	1	UN-FERTILIZED EGG TYPE	Kingdom: Animalia
	2	egg	2		Phylum: Arthropoda
	3	egg	3	hatching	Class: Insecta
Cell is capped	4	1st larval	1	1st instar (moult)	Order: Hymenoptera
	5	2nd larval	2	2nd instar(moult)	Family: Apidae
	6	3rd larval	3	3rd instar (moult)	Genus: Apis
	7	4th larval	4	4th instar (no moult)	Species: Apis mellifera
	8	4th larval	5	gorging	Food: Nectar and/or honey and pollen (Bee bread)
	9	larva	6	gorging	Food: Nectar and/or honey and pollen (Bee bread)
	10	larva / pre-pupa	7	gorging	Food: Nectar and/or honey and pollen (Bee bread)
	11	pre-pupa	1		Capping begins
	12	pre-pupa	2		Capped; gorging on remaining food in cell
	13	pre-pupa	3		Cacoon spinning begins
Purple eye	14	pre-pupa	4	5th moult to pupa	Pupal form develops
	15	pupa	5		
	16	pupa	6		Color begins to develop in the eye
	17	pupa	7		
	18	pupa	8		
	19	pupa	9		
	20	pupa	10		Darkening of the thorax
	21	pupa	11		
	22	pupa/adult	12.5	6th moult of pupa to adult	Darkening of the abdomen
	23	adult	13		The wings, legs, and mouth parts are freed; the pupa becomes an adult
Emergence	24	adult	14		and is able to chew & emerge.
			24	Day's Cycle	
The Adult Life of a Drone	25-28	adult	1-4		No Job ! - Remains in the hive and is fed by nurse bees
The Adult Life of a Drone	29-34	adult	5-10		Feeds himself but does nothing ...
The Adult Life of a Drone	35	adult	11		Reaches sexual maturity. Available to mate.
The Adult Life of a Drone	36-84	adult	12-60		Flies to get lucky, and dies afterwards
Life Span	Winter	Summer	Adult Drone		
	n/a	< 3 months			
Body Length	18 - 22 mm		Adult Drone		
Hatching Body Weight	nearly 200 mg		Adult Drone		
Sex	Male		Adult Drone		
Drone Cell Position	Horizontal		Drone		
E. Drone Cell Size	6.4 - 6.6 mm		Drone		

Kingdom: Animalia	Order: Hymenoptera
Phylum: Arthropoda	Family: Apidae
Class: Insecta	Genus: Apis

Species: Apis mellifera (common western honey bee)
Apis mellifera carnica    Apis mellifera caucasia    Apis mellifera ligustica
Apis mellifera mellifera    Apis mellifera scutellata

Apis            mellifera

carnica  
caucasia  
ligustica  
mellifera  
scutellata  
\*Russian

\*Slovenia, eastern Alps, Balkans  
\*Central Caucas (Georgia, Turkey, Armenia, Black Sea area)  
\*Italian (dark banded, light banded, & golden)  
\*dark bee of northern Europe  
\*Africa (central, west) S.&C. America Southern USA  
\*neither Italian nor Carniolian but most characteristics of  
Caucasian...originates from Primorsky Krai (province of far  
south-eastern Russia -borders China, N. Korea)

**BASIC GENETICS**

Haploid - unpaired,  
single set  
chromosomes  
Diploid - 2 complete  
sets of  
chromosomes, 1  
from each parent

\*Haplo-diploidy is a sex-determination system

Bees, most ants, and wasps work like this system.

Sister is the relationship between female siblings of  
the same father and mother. Males are the  
combination clone of their mothers.

Drones

100% related to the queen of the hive. Father-less  
but have a grand-father. Drones are full brothers to  
each-other. Queen is only 50% related to each  
drone and 50% related to each worker.